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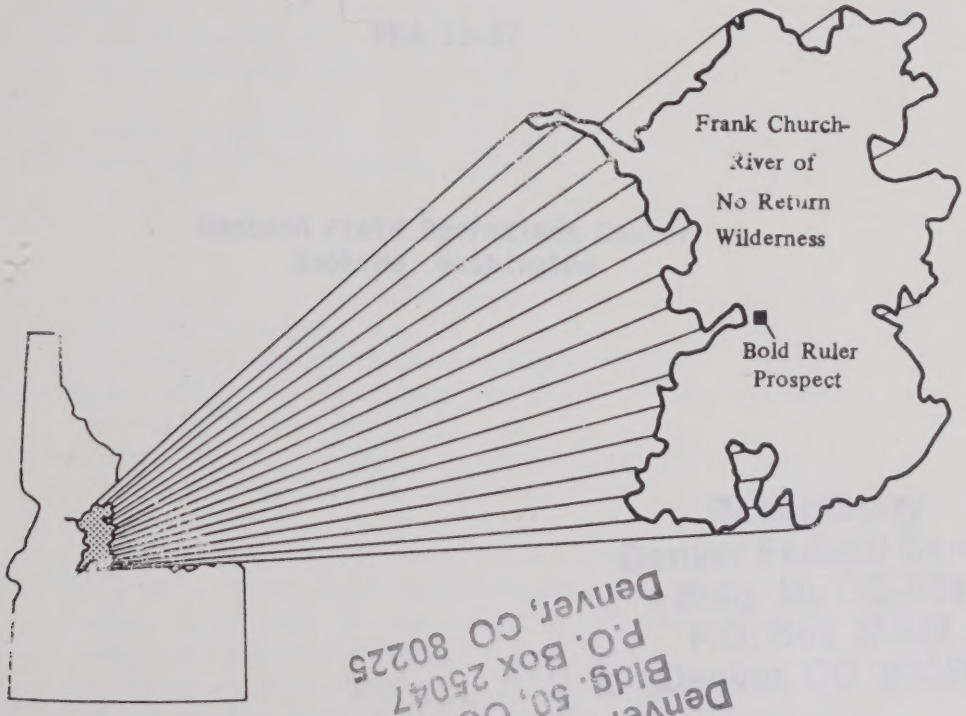

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MINERAL RESOURCE ASSESSMENT OF THE BOLD RULER SITE-SPECIFIC STUDY AREA, THUNDER MOUNTAIN DISTRICT, FRANK CHURCH-RIVER OF NO RETURN WILDERNESS, VALLEY COUNTY, IDAHO

By Robert H. Lambeth and Stephen R. Iverson

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UNIT OF MEASURE ABBREVIATIONS USED IN THIS REPORT

ft	foot	M.Y.B.P.	million years before present
gm	gram		
in.	inch	tr oz	troy ounce
mg	milligram	pct	percent
		ppm	part per million

MINERAL RESOURCE ASSESSMENT OF THE BOLD RULER SITE-SPECIFIC STUDY AREA, THUNDER MOUNTAIN DISTRICT, FRANK CHURCH-RIVER OF NO RETURN WILDERNESS AREA, VALLEY COUNTY, IDAHO

By Robert H. Lambeth[1] and Stephen R. Iverson[2]

ABSTRACT

This study of the Bold Ruler prospect area, conducted by the Bureau of Mines, indicates that it may be a fracture-controlled epithermal gold deposit in a tuffaceous host rock similar to Coeur d'Alene Mines Corp.'s Sunnyside Mine.

The host rock is a dark gray, welded, lapilli tuff of the Sunnyside Rhyolite, which is restricted to the Thunder Mountain caldera. An exposure in one hydraulic pit contains north-striking, vertical fractures which correlate with gold distribution and appear to transect a larger east-northeast striking fracture system. Four hundred seventy-nine soil samples, 46 soil placer samples, and 28 rock chip samples were taken at the prospect and vicinity. Anomalous threshold levels were determined for soil samples by interpretation of lognormalized histograms and cumulative frequency vs. probability curves. Anomalous precious metals contents were restricted to the lapilli tuff. Anomalous geochemical features up to 5 ppm gold on a soil sample grid closely follow the exposed north-south fracture trend. From distribution patterns of anomalous gold, silver, and eight other trace elements, two areas of 25 and 5 acres are identified as possible exploration targets for gold mineralization. The areas continue past the soil sample grid boundaries to the southwest and northeast. An additional 83 assorted reconnaissance samples, some highly anomalous in precious and trace metals, were taken in areas surrounding the prospect, including the intensely argillized Safety Creek drainage to the south. Further work would be needed to completely delineate the extent of the anomalous areas, map the structure and alteration, and characterize possible gold resources.

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INTRODUCTION

Purpose

The Bureau will conduct detailed, site-specific mineral investigations of areas determined to have a high probability of containing significant mineral resources, with emphasis on strategic and critical minerals. The studies will estimate mineral resources and the potential for economic development by private enterprise.

Most of the anomalous mineral occurrences have been found by regional exploration techniques, such as airborne geophysics, stream sediment, and pan concentrate sampling, or sampling mineralized surface outcrops. A few site-specific areas have been selected on the basis of past prospecting activity, such as the presence of adits, trenches, or pits. Further studies of these areas would entail looking for extensions of known mineralized zones.

The Bold Ruler prospect was chosen for site-specific examination because of its similarity to the Sunnyside Mine, the discovery of gold in the concentrate of a reconnaissance soil sample collected during a brief examination of the property in September 1984, and the extent of the past workings. Permission to examine the area was obtained from the claimant (Golden Reef Mining Co. of Boise, ID), and in August 1985 a 6-man crew from the Bureau's Western Field Operations Center spent 10 days mapping and sampling the area.

Location

The Bold Ruler prospect is located in the eastern part of the Thunder Mountain district (1, p. 68-69)[3] in the west-central portion

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[3]Underlined numbers in parentheses refer to items in the list of references at the end of this report.

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of the Frank Church-River of No Return Wilderness in central Idaho (fig. 1). The district, which is completely enveloped by the Wilderness, is accessible by gravel road via Yellow Pine, ID, from McCall, ID (80 miles), and Cascade, ID (90 miles), during most of the year. Presently, roads to Yellow Pine are not maintained during winter months. From the Sunnyside Mine, a closed road extends for 2 miles into the wilderness area to Marble Creek and the Belleco Mill site. A very poor foot trail approximately 1 mile long leads from the Belleco Mill to the Bold Ruler prospect (pl. 1).

The area is moderately rugged, containing abundant talus and extensive conifer cover on slopes and ridges and dense brush in the valleys. The elevation at the prospect's adit is 7,450 ft. Winters are long and cold with a snow cover that persists through June; summers are cool with frequent rain showers.

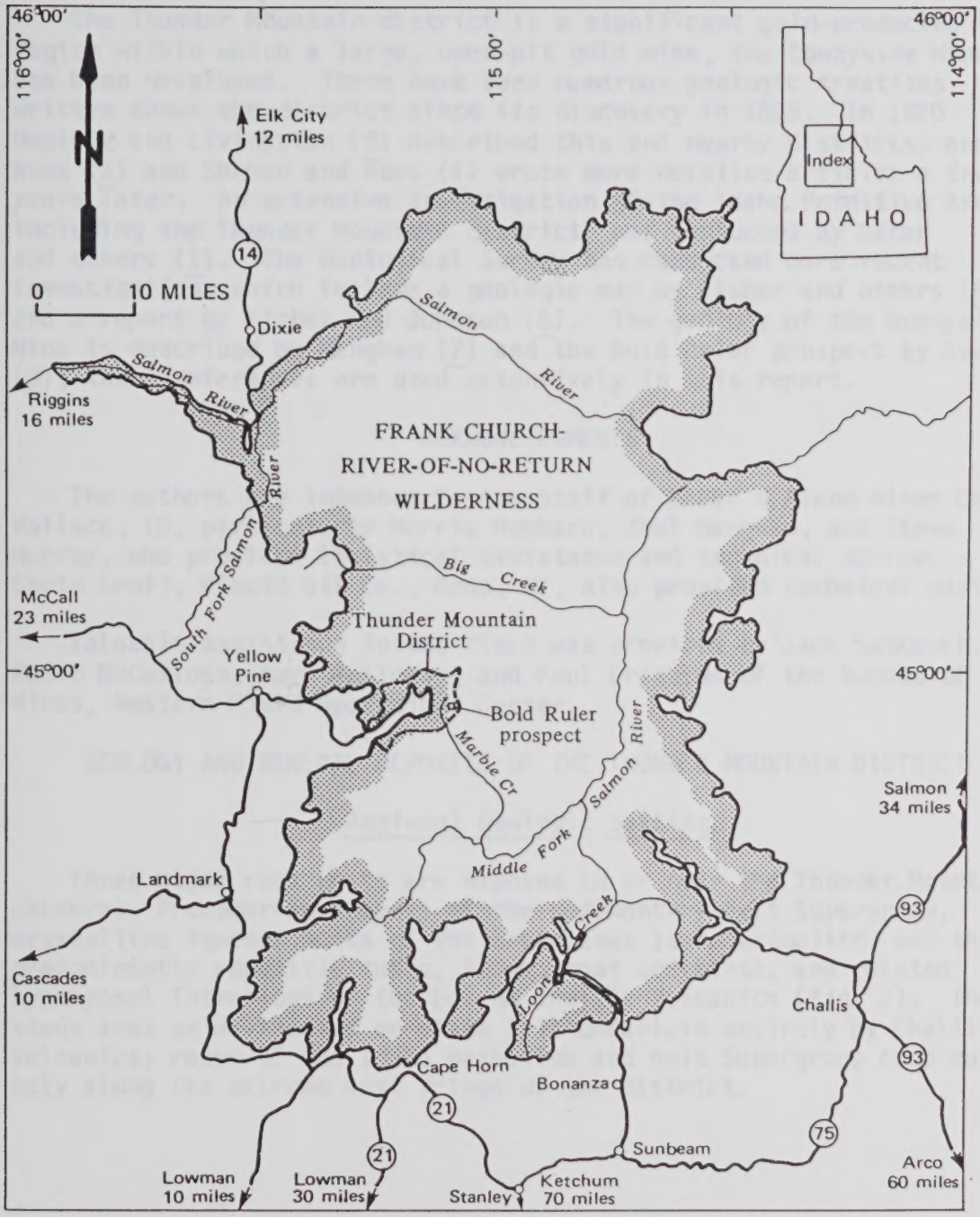

FIGURE 1. – Location of the Thunder Mountain district and Bold Ruler prospect

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Previous Work

The Thunder Mountain district is a significant gold-producing region within which a large, open-pit gold mine, the Sunnyside Mine, has been developed. There have been numerous geologic treatises written about the district since its discovery in 1895. In 1920 Umpleby and Livingston (2) described this and nearby districts, and Ross (3) and Shenon and Ross (4) wrote more detailed articles a few years later. An extensive investigation of the Idaho Primitive Area, including the Thunder Mountain district, was conducted by Cater and others (1). The Geological Survey has conducted more recent investigations which include a geologic map by Fisher and others (5) and a report by Fisher and Johnson (6). The geology of the Sunnyside Mine is described by Mangham (7) and the Bold Ruler prospect by Adams (8); these references are used extensively in this report.

ACKNOWLEDGMENTS

The authors are indebted to the staff of Coeur d'Alene Mines Corp., Wallace, ID, particularly Morris Hubbard, Joel Mangham, and Steve Murray, who provided logistical assistance and technical advice. Chris Croff, Placid Oil Co., Reno, NV, also provided technical advice.

Valuable assistance in the field was provided by Jack Satkoski, Robin McCulloch, Gary Galloway, and Paul Erickson of the Bureau of Mines, Western Field Operations Center.

GEOLOGY AND MINERAL DEPOSITS OF THE THUNDER MOUNTAIN DISTRICT

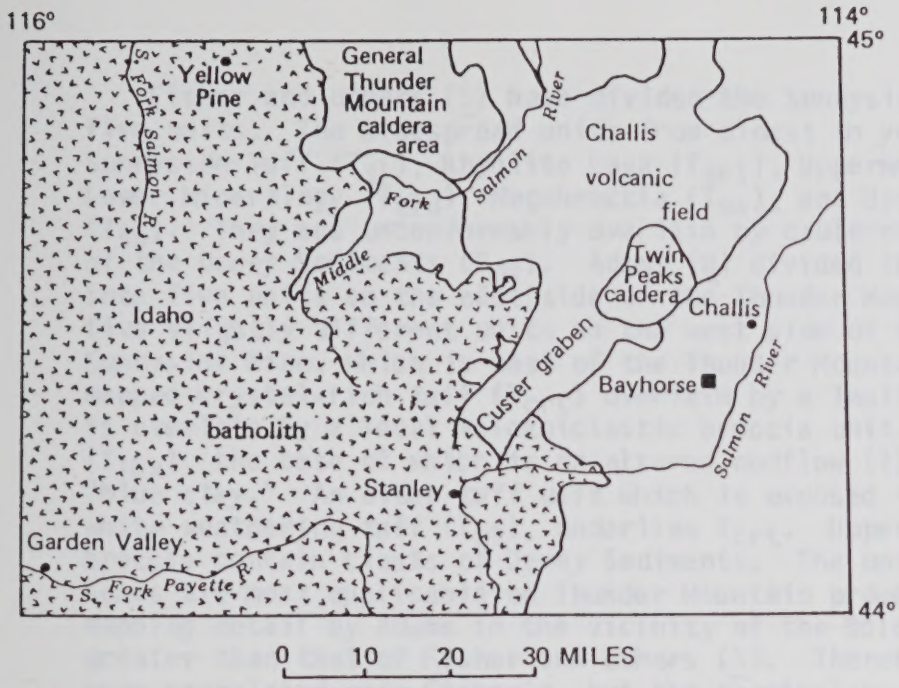
Regional Geologic Setting

Three major rock units are exposed in or near the Thunder Mountain caldera: Precambrian members of the sedimentary Belt Supergroup, crystalline igneous rocks of the Cretaceous Idaho batholith, and the predominantly rhyolitic tuffs, flows, moat sediments, and related hypabyssal intrusions of the Eocene Challis Volcanics (fig. 2). The study area as delineated on plate 1 is underlain entirely by Challis Volcanics; rocks of the Idaho batholith and Belt Supergroup crop out only along the extreme west fringe of the district.

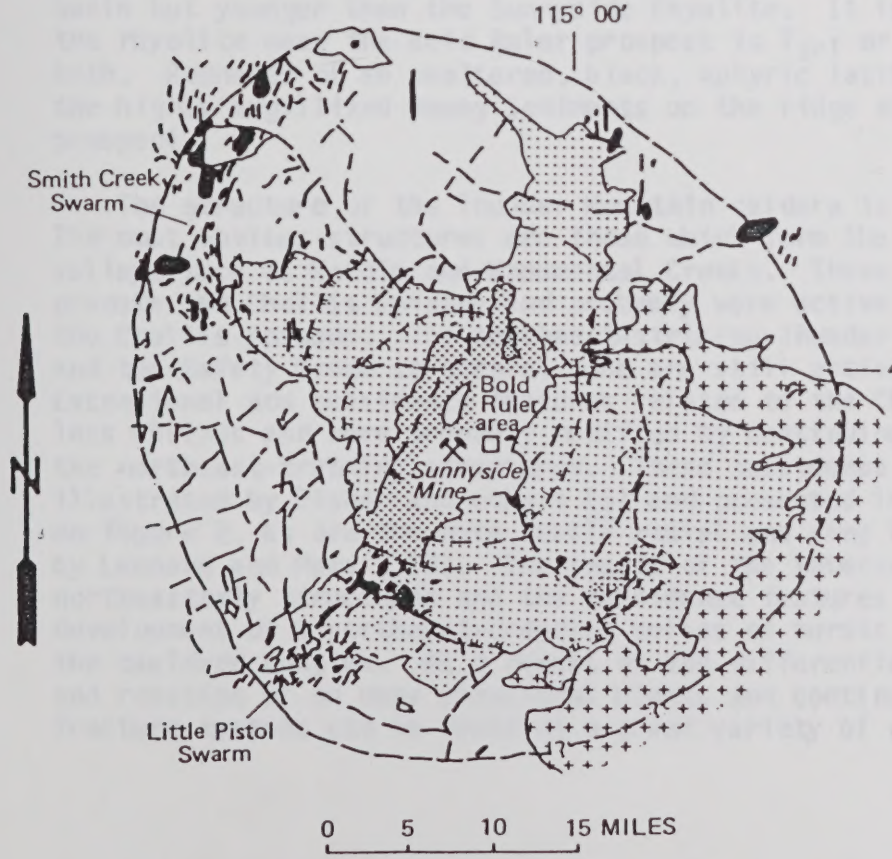
The "Challis Episode," well documented by Leonard and Marvin (9), reached its peak about 50 million years before present (M.Y.B.P.) and lasted about 7 million years. The Thunder Mountain caldera, a major feature of the Challis Volcanic Field (fig. 2), is actually a nested caldera within two larger calderas, the Cougar Basin caldera and the even larger Quartz Creek cauldron. The shape of the cauldrons are elongate to the northeast and southwest, and many subsidence and later faults mimic this trend rather than being the more normal arcuate shape. The early eruptions were of latite ash, but rhyolitic eruptions were dominant during most of the episode. The primary ore-hosting unit in the district, the Sunnyside Rhyolite, is confined to the Thunder Mountain caldera and is one of the youngest ash flow-tuff eruptions of the Episode. This is overlain by caldera-filling sediments and has been intruded by the Casto pluton.

Isotope studies by Criss and Taylor (10) indicate that most mineral occurrences, including the Thunder Mountain district, are near the + 8 per mil ^{18}O isopleth of the Casto pluton hydrothermal system. The Thunder Mountain district was, therefore, probably mineralized by the Casto pluton hydrothermal system approximately, or shortly before, 44 M.Y.B.P. Preexisting, subsidence-related ring and radial structures and their associated fractures acted as conduits and hosts for the mineralizing fluids and their products. Adams (8, p. 96) obtained a K-Ar age date of 42.8 + 1.0 million years from quartz-adularia veins cutting the Sunnyside ore deposit.

—after Fisher and Johnson (6)



Thunder Mountain "nested caldera" complex
—after Leonard and Marvin (9)



EXPLANATION

Oligocene (?) and Eocene dikes and stocks

Eocene Casto pluton

EOCENE CHALLIS VOCANICS

Latite flows of Lookout Mountain

Sunnyside rhyolite

Units of regional extent in Quartz Creek cauldron: upper, rhyolitic unit and lower, latitic unit

Cretaceous and Precambrian plutonic and metamorphic rocks

Faults and faulted contacts, dashed where approximately located

Thunder Mountain caldera

Cougar Basin caldera

Quartz Creek cauldron

FIGURE 2— Location of the Thunder Mountain caldera

Fisher and others (5) have divided the Sunnyside Rhyolite into five units. The widespread units from oldest to youngest are Lower Sunnyside Tuff (T_{sl}), Rhyolite Lava (T_{srl}), Uppermost Cooling Unit of Lower Mineralogy (T_{slu}), Megabreccia (T_{mx}), and Upper Sunnyside Tuff (T_{su}). They are unconformably overlain by cauldron-filling sediments of the Dewey Sediments (T_{ds}). Adams (8) divided the Sunnyside Rhyolite into five units on the east side of the Thunder Mountain Fault and five slightly different units on the west side of the fault. At the Sunnyside Mine, which is east of the Thunder Mountain Fault, Adams has mapped crystal-rich tuff (T_{crt}) overlain by a lapilli tuff (T_{lt}). This is overlain by a local volcaniclastic breccia unit, lithic breccia (T_{lbx}), the base of which is an altered mudflow (?) known locally as "blue clay." An older tuff unit which is exposed in Marble Creek, the white weathering tuff (T_{ut}), underlies T_{crt}. Upper parts of lithic breccia contain clasts of Dewey Sediments. The units as described by Adams are most applicable on Thunder Mountain proper. However, the mapping detail by Adams in the vicinity of the Bold Ruler prospect is greater than that of Fisher and others (5). Therefore, Adams' units were correlated with Fisher's, but the terminology of Fisher and others (5) is used on plate 1. The crystal-rich tuff of Adams (T_{crt}) appears to include the Upper Sunnyside Tuff (T_{su}), Uppermost Cooling Unit of Lower Mineralogy (T_{slu}), and the upper Lower Sunnyside Tuff (T_{sl}) of Fisher. Adams' white weathering tuff (T_{wt}) is the apparent correlative of the lower Lower Sunnyside Tuff (T_{sl}) of Fisher and others (5). Near the Bold Ruler prospect the T_{su} and T_{sl} may have both been intruded by vertical, flow-banded, porphyritic rhyolite dikes and plugs (T_{ir}). From relationships in upper Safety Creek, Adams (8, p. 36) believes this rhyolite is older than the Dewey Sediments exposed in Safety Creek basin but younger than the Sunnyside Rhyolite. It is not clear whether the rhyolite near the Bold Ruler prospect is T_{srl} or T_{ir} or perhaps both. Remnants of an unaltered, black, aphyric latite flow (T_l) cap the highly argillized Dewey Sediments on the ridge above the Bold Ruler prospect.

The structure of the Thunder Mountain caldera is extremely complex. The most obvious structures are those which form the northeast-trending valleys such as Marble and Monumental Creeks. These structures may predate the Challis Episode and probably were active during and after the Challis Episode. The northeast-striking Thunder Mountain Fault and the Safety Creek structural zone are still active (8, p. 58). Extensional and subsidence features related to the Challis Episode are less obvious and were probably modified by continuing movement along the northeast-trending structures. These subsidence features are well illustrated by Fisher and others (5) and presented in simplified form on figure 2, as are the more subtle radial and ring fractures defined by Leonard and Marvin (9). The result of the interaction of the northeasterly structures and the subsidence features has been the development of a northeast-trending series of horsts and grabens in the cauldron complex. As a result of the differential subsidence and rotation of so many structural blocks and continuity of movement, fracture systems can be found at a great variety of attitudes.

Mining History

Gold was first discovered in the district at what is now the Dewey Mine (fig. 3, No. 5) in 1896 by the Caswell Brothers (1, p. 65). The Sunnyside deposit was discovered shortly thereafter. A local "rush" occurred between 1902 and 1907; several stamp mills were erected, and the towns of Roosevelt and Belleco were constructed. The district became inactive in 1909 after the closure of the Dewey and Sunnyside Mines and the mudslide-induced flooding of the town of Roosevelt by Monumental Creek which produced Roosevelt Lake. The Sunnyside Mine was reopened in 1924 and operated sporadically until closure by Gold Mine Order L-208 in 1942. After World War II exploration activity in the district continued intermittently, mostly at the Dewey and Sunnyside Mines, and became intense during the 1970's as the price of gold increased. The result is the development of the new Sunnyside open pit mine with heap-leach recovery by Coeur d'Alene Mines Corp. and extensive exploration of the Dewey Mine. Prior to this development total production from the district was approximately 22,000 tr oz gold (C. Croff, personal communication, 1985).

Mines, Prospects, and Mode of Occurrence

The major lode mines and prospects in the vicinity of the Sunnyside Mine, two possible placer gold areas, and the prospects examined by the Bureau during this investigation are illustrated on figure 3. All are gold prospects except for Monumental Summit (No. 1) which is a rare earth prospect in a metamorphosed block of calcareous and Precambrian metasedimentary rock tectonically emplaced in the Challis Volcanics.

There are two modes of gold occurrence. At the Dewey Mine (No. 5), visible as well as microscopic gold is hosted by argillized portions of carbonaceous paleochannel fillings in the Dewey Sediments. At the Sunnyside Mine (No. 9), the gold occurs as fine, free gold and electrum along fracture planes in silicified lapilli tuff, a part of Upper Sunnyside Rhyolite. The ascending mineralizing fluids may have been trapped by the impervious "blue clay" that overlies the lapilli tuff (7, p. 4). Most of the prospects on Thunder Mountain are in units of the Upper Sunnyside Rhyolite. Adams believes that the major mineralizing conduit was the Thunder Mountain Fault (8, p. 90), a near-vertical, northeast-striking fault on the west side of Thunder Mountain.

The drainages with placer gold potential which were evaluated by Cater and others (5, pp. 103-107) are Monumental (fig. 3, No. 2) and Marble (fig. 3, No. 14) Creeks. Gold values, however, were very low.

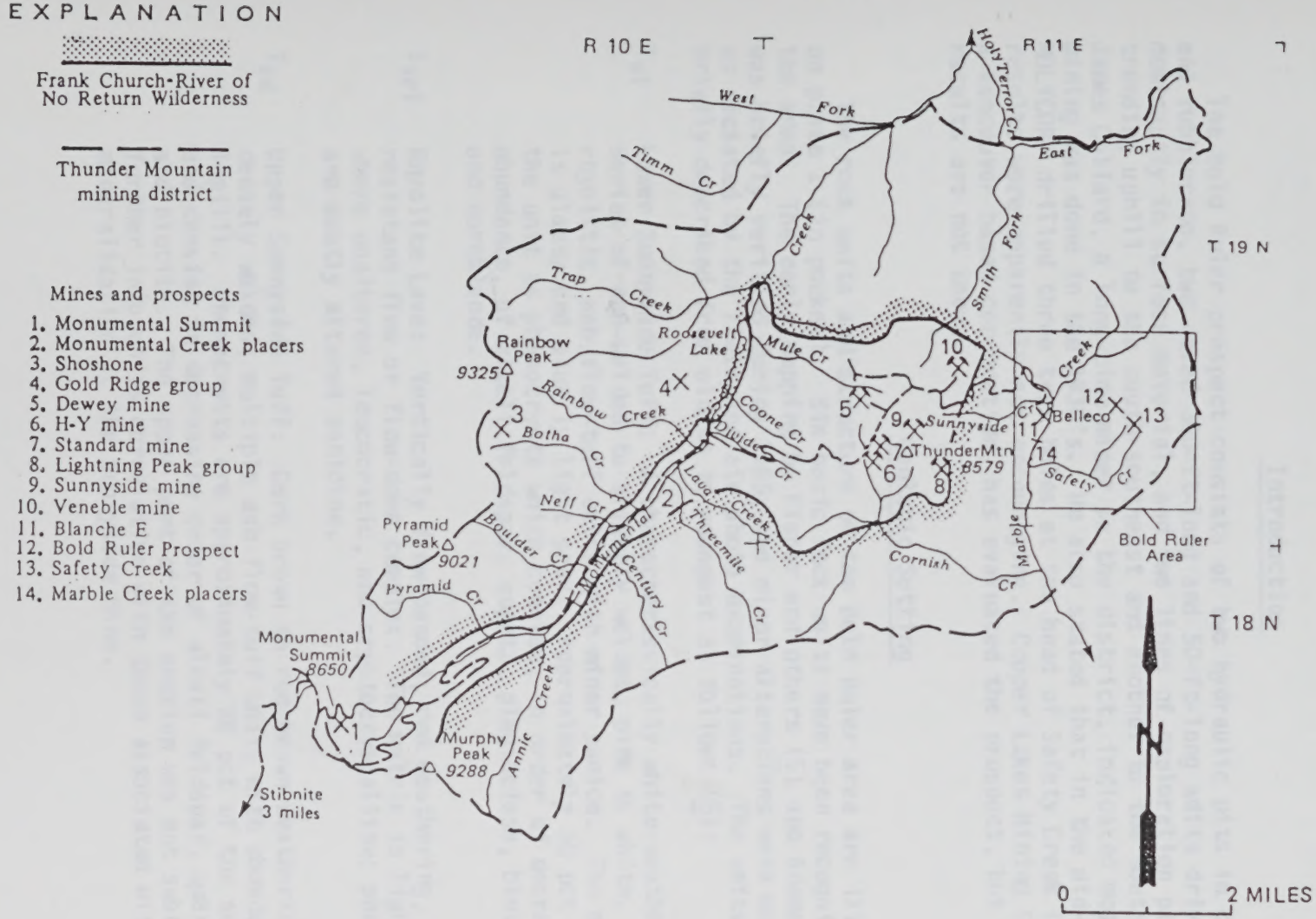


FIGURE 3.– Major mines and selected prospects of the Thunder Mountain district (5)

BOLD RULER AREA

Introduction

The Bold Ruler prospect consists of two hydraulic pits in colluvium and rubblecrop, two caved 300-ft-long and 50-ft-long adits driven dominantly in surface material, and two lines of exploration pits, one trending uphill to the south-southeast and another to the southwest. James Collard, a long-time miner in the district, indicated most of the mining was done in the 1930's. He also stated that in the mid-1960's MOLYCORP drilled three test holes at the head of Safety Creek (pl. 1); results were apparently not encouraging. Copper Lakes Mining Co., a Vancouver based corporation, has evaluated the prospect, but the results are not known.

Geologic Setting

The rock units and structure of the Bold Ruler area are illustrated on plate 1 (in pocket). Six basic rock units have been recognized in the area. The early mapping by Fisher and others (5) and Adams (8) was briefly verified during 1985, and minor alterations were made as dictated by the field and air photo examinations. The units are briefly described from oldest to youngest as follows (5):

T_{sl} Lower Sunnyside Tuff: A characteristically white-weathering series of non-welded to slightly welded, pink to white, rhyolitic, ash flow-tuff units with minor pumice. The matrix is glassy and usually light gray. Approximately 50 pct of the unit is phenocrysts which consist, in order of decreasing abundance, of alkali feldspar, quartz, plagioclase, biotite, and hornblende.

T_{srl} Rhyolite Lava: Vertically flow-banded, red weathering, resistant flow or flow-dome complex. The matrix is light gray where unaltered, leucocratic, and cryptocrystalline; phenocrysts are mostly altered sanidine.

T_{su} Upper Sunnyside Tuff: Dark brown to red-brown weathering, densely welded, multiple ash flow-tuff units with abundant lapilli. Phenocrysts are approximately 25 pct of the section and consist in decreasing order of alkali feldspar, quartz, and biotite. The upper part of the section was not subdivided further into units correlative with those associated with the mineralization at the Sunnyside Mine.

T_{ir} Intrusive Rhyolite: Vertically flow-banded plugs and dikes of sanidine and plagioclase porphyry rhyolite with a light gray matrix.

T_{ds} Dewey Sediments: Laminated, cauldron-filling sediments of siltstone, volcaniclastics, air-fall tuff, and debris with carbonaceous horizons and channel-filling units.

T_l Latite of Lookout Mountain: Dark, vesicular lava with occasional plagioclase phenocrysts.

The rhyolite units T_{ir} and T_{srl} are difficult to distinguish in the field. Distinct autobrecciation textures characteristic of the margins of a flow-dome complex were observed west of the Bold Ruler prospect. This large rhyolite body could thus be T_{srl} or perhaps a combination of T_{ir} and T_{srl}.

The structure of the area as illustrated on plate 1 is dominated by the north-northeast-trending fault which forms Marble Creek and the more subtle, arcuate, cauldron subsidence-related (?) shear zone at the head of Safety Creek. A wide, poorly defined, near-vertical, east-northeast-striking shear zone crosses the Bold Ruler prospect, and major west-northwest fractures are common. Outcrop and float patterns indicate the east-northeast shear zone contains a complex tectonic mixture of rhyolite and rhyolite tuff. Fractures exposed in a T_{su} outcrop in the upper Bold Ruler hydraulic pit strike N. 10°-30° E. and are vertical. Pumice lapilli at the same outcrop strike N. 40° W. and dip 18° SW.

Hydrothermal activity has been intense in this area. The entire cauldron has been subjected to propyllitic alteration, and in this area the dominant alteration is argillic. Unaltered T_l overlying intensely argillized T_{ds} indicates alteration occurred prior to 29.1 M.Y.B.P. as reported by Marvin (11). The T_{ds} strata have been so intensely argillized that they are moving as slow landslides down Safety Creek. At the Bold Ruler prospects, the dominant form of exposed alteration is pervasive and locally intense argillization with some quartz-sericitization. The Sunnyside Rhyolite apparently was more susceptible to alteration than intrusive rhyolite which is intensely altered only within the shear zone. West of the prospect, the T_{ir} has minor silicification and has been hematized and brecciated (figs. 4 and 5).

FIGURE 4. - Brecciated, hematized, and resistant T_{ir} (Sunnyside Mine on skyline).

FIGURE 5. - Brecciated, hematized, and resistant T_{ir}.

The Sunnyside Rhyolite weathers readily and outcrops are rare; only two small outcrops of T_{su} are exposed in the Bold Ruler workings, both in the upper hydraulic pit (fig. 6). The lower hydraulic pit contains a small outcrop of T_{ir} or T_{slr} (fig. 7). Figure 8 illustrates the dump of the main adit, and a surface workings map of the Bold Ruler prospect is shown on figure 9.

Field Methods

A three phase approach was utilized to evaluate the area:

1. Stream sediment and placer samples were taken from all streams surrounding the Bold Ruler and Safety Creek areas and other nearby areas east of Marble Creek.

2. A geologic map was constructed using standard field methods and air photo interpretation to verify, combine, and modify the maps of Fisher and others (5) and Adams (8).

3. Detailed samples of workings and the various rock lithologies were taken. A 2,000 by 2,000-ft soil sample grid was centered on the Bold Ruler prospect. Grid lines bearing N. 50° E. were surveyed 100 ft apart, and soil samples were taken at 100-ft intervals along these lines. A 50-ft by 100-ft soil sample spacing was used near the workings. Soil placer samples were taken at selected soil sample locations to compare soil geochemical results with observation of visible gold.

All sample locations except the soil grid samples are illustrated on plate 1; more precise locations of samples taken in or near the Bold Ruler workings are illustrated on figure 9. The locations of the soil and soil placer samples are illustrated on plates 2 through 14 (in pocket). Samples may be located by (x, y) coordinates on plates 2 through 14; the lower left sample is the origin (0, 0). The location of the soil sample grid is also shown in figure 10.

All stream placer and soil placer samples were taken as heaping 14 in. pan samples and concentrated in the field to identify visible gold. Final processing of the samples was conducted in the placer laboratory at WFOC. Soil, stream sediment, and rock chip samples were processed at WFOC, and a split of the pulp was sent to Geochemical Services, Inc.,[4] Torrance, CA, for analyses by ICAP methods. Pre-1985

[4]Reference to a specific company does not imply endorsement by the Bureau.

samples were analyzed by ICAP and fire-assay/ICAP methods at the Bureau's Reno Research Center, Reno, NV. Only the minus 80 mesh fraction of all stream sediment and soil samples was analyzed.

FIGURE 6. - Upper hydraulic pit, Bold Ruler prospect.

FIGURE 7. - Lower hydraulic pit, Bold Ruler prospect.

FIGURE 8. - Main adit dump, Bold Ruler prospect

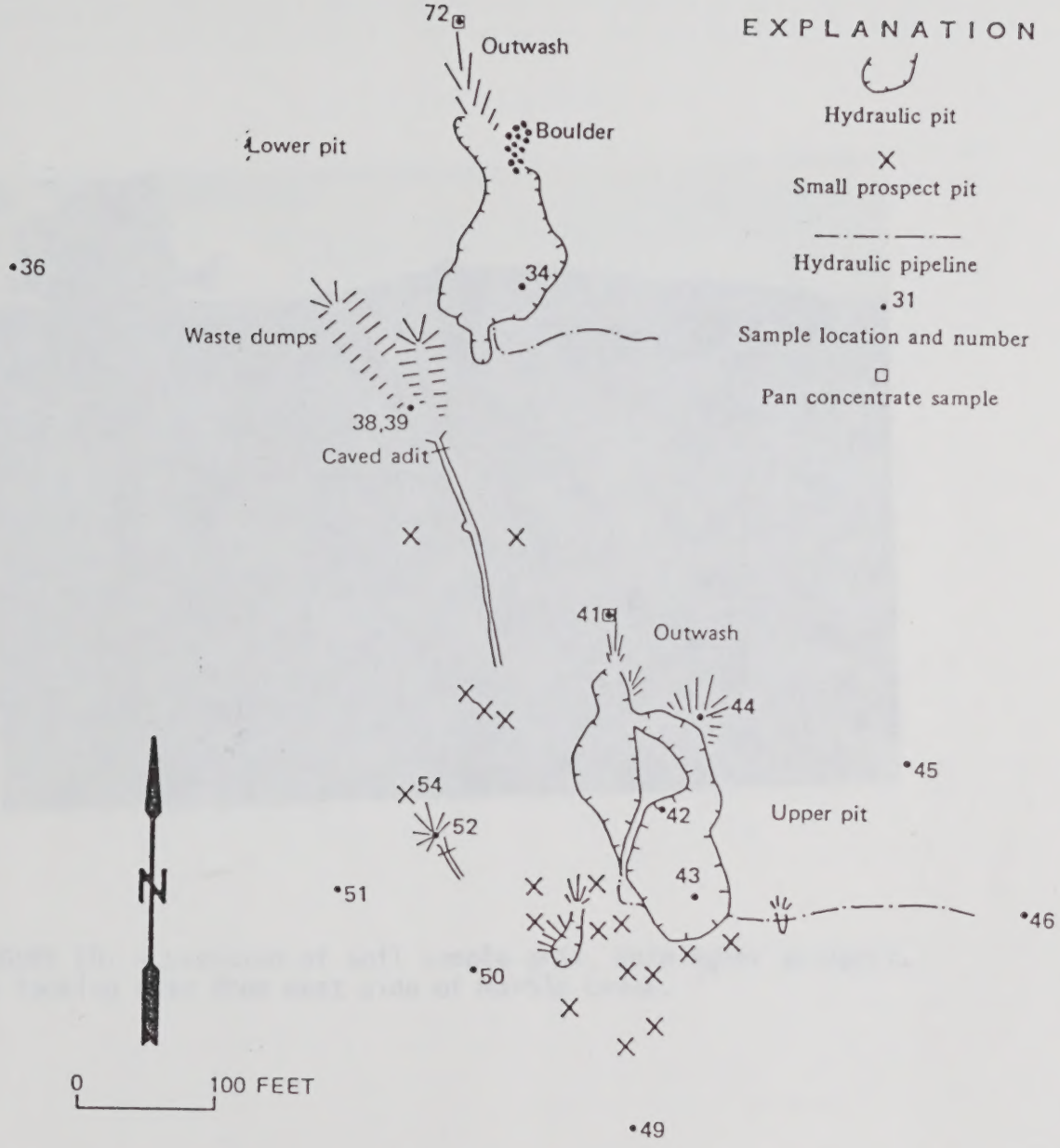


FIGURE 9. – Sample locations in the vicinity of the hydraulic pits, Bold Ruler prospect

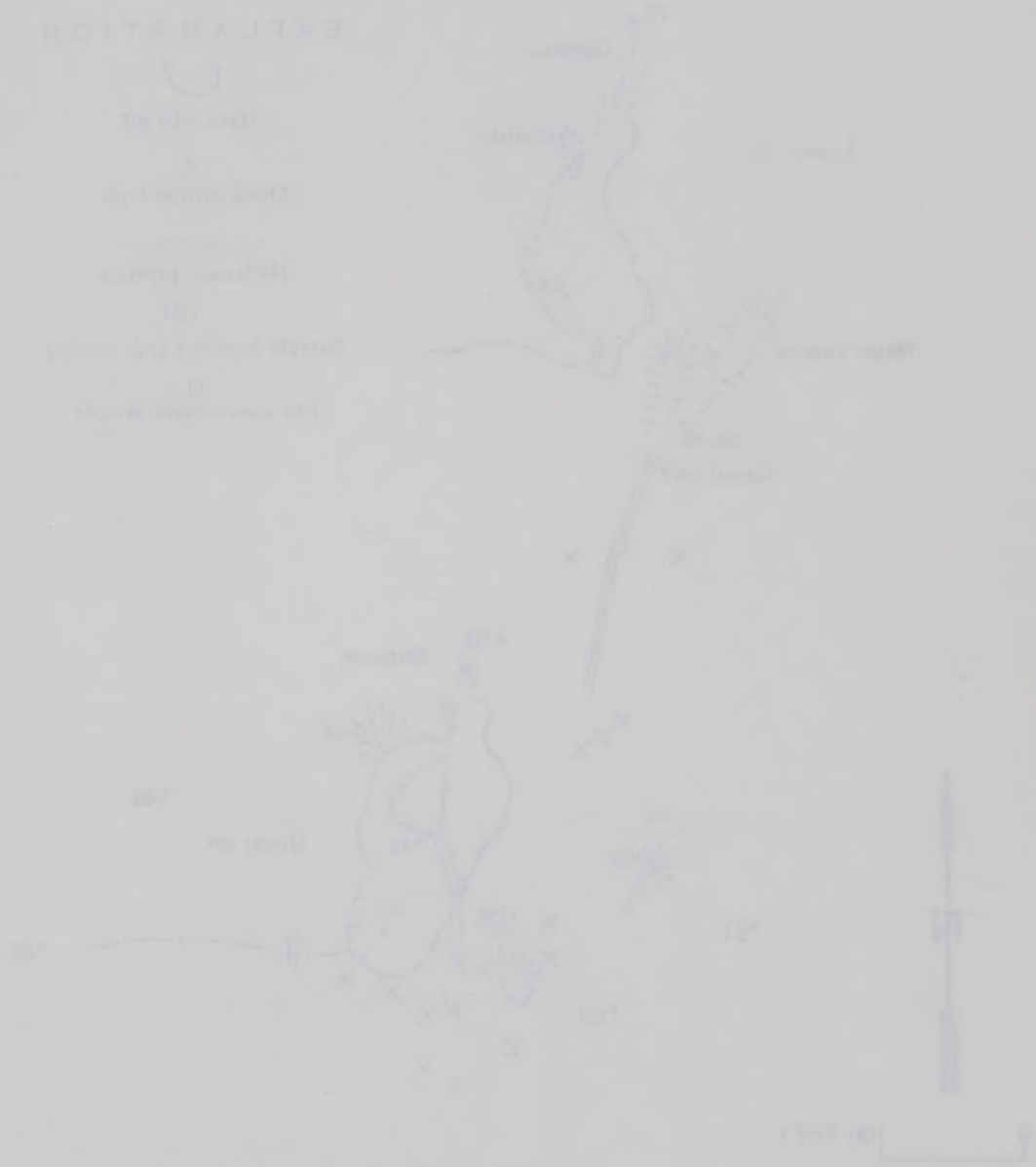


FIGURE 10. - Location of soil sample grid, Bold Ruler prospect. View looking east from west side of Marble Creek.

During this study Bureau personnel took 20 stream sediment samples, 19 reconnaissance placer samples, 2 miscellaneous soil samples (not on soil sample grid locations), 42 reconnaissance rock chip samples, 28 rock chip samples at the prospect and vicinity, 479 soil samples on the Bold Ruler grid, a soil placer sample at the outlet of each hydraulic pit, and 44 soil placer samples on the Bold Ruler grid. Descriptions and analyses are tabulated in the appendix in tables A-1 through A-4.

Results and Interpretations

Several interesting features can be observed from plate 1 and the reconnaissance geochemical and placer sample data tables A-1 and A-2.

1. All reconnaissance placer samples with visible gold occur only in the north half of the Bold Ruler area. Placer samples 12 and 71, from the same stream, contained 0.11 mg and 0.024 mg gold, respectively; this stream drains the north half of the arcuate fault. Placer sample 11, from a small stream which drains the Bold Ruler prospect, contained 0.008 mg gold. Placer sample 26 was from the main Marble Creek alluvium and contained 0.006 mg gold. Two placer samples, 32 and 41, slightly downhill from the two hydraulic pits, contained 0.982 mg and 2.707 mg gold, respectively. Placer sample 67, which contained 0.13 mg gold, is from the Blanche E. Prospect which may not be part of the Bold Ruler mineralizing system. All gold observed was extremely fine.

2. Most stream sediment samples with anomalous precious metal or trace element contents are in the north half of the area. These are locations 9, 12, 20, 21, 22, 30, 69, and 71. Only one location from the Safety Creek drainage, 97, was anomalous. By inspection and in comparison with normal crustal abundances, threshold levels appear to be: Au = 0.1, Ag = 0.5, Zn = 100, Mo = 15, Hg = 1, As = 50, Sb = 5, and Tl = 1. Threshold levels were not estimated for Cu, Pb, F, or Ba.

3. All rock samples with anomalous precious metals contents except 72 and 77 were from rock unit T_{su}. These samples are 31, 42, 44, 51, 52, 53, 54, 55, and 58. Samples 72 and 77 may be from T_{ds}, but alteration was too intense to identify the unit with confidence. Neither gold nor silver has been observed in samples of T_{ir}. The same threshold values were used as with stream sediment samples.

4. Anomalous trace element contents were also concentrated in rock and soil samples from T_{su}. These samples are 25, 36, 39, 44, 54, 55, 58, 75, 76, 78, 80, 83, 84, and 85. Anomalous samples from other rock types are: 61, 62, 91, and 92 from T_{ir}; samples 3, 25, 66, and 88 from unit T_{sl}, and samples 72, 77, 86, 94, and 95 from T_{ds}.

The results of soil samples from the Bold Ruler grid (table A-3) were subjected to a more intense statistical scrutiny than were the reconnaissance samples. Data was entered into a computer, and for each element a lognormal histogram and a geochemical contour map were constructed with the aid of the computer's plotter. When feasible, threshold levels were determined using a lognormal cumulative frequency vs. probability curve (except Au, Hg, and Sb) as described by Lepeltier (12). Threshold levels determined from cumulative frequency curves were the lower value of the following: (1) the change in slope of the curve (population inflection point), (2) the intercept of the curve with the 2.5 pct cumulative frequency level, or (3) the midpoint between two overlapping population curves due to a well-defined multiple population. If none of these values for an element compared favorably with threshold contours drawn from threshold values determined for the other elements, lower values of apparent distinct populations from the histograms for that element were compared with the threshold contours of the other elements. The value which exhibited the "best fit" with threshold contours of other elements was used as the threshold. Cumulative frequency curves were not constructed for gold, mercury, and antimony because of the large number of samples which contained values below the reliable detection limits.

A summary of statistical results is tabulated on table 1. Statistical procedures for each element are briefly summarized in appendix B, and histograms and cumulative frequency curves utilized are illustrated in appendix B on figures B-1 through B-9. The threshold contour lines of closely associated elements have been combined on four separate maps: copper, lead, and zinc on plate 2, gold and molybdenum on plate 3, silver and mercury on plate 4, and arsenic and antimony on plate 5. It is apparent from these plates that copper, lead, and to a lesser extent zinc are very closely associated with Intrusive Rhyolite (T_{ir}). They are possibly syngenetic and probably not good indicators of gold mineralization. Gold, molybdenum, mercury, silver, arsenic, and antimony threshold contours correlate very closely with each other and with Sunnyside Rhyolite (T_{su}). They are almost certainly epigenetic and should be good indicator elements. Only sporadic anomalies of these elements are found within the Intrusive Rhyolite. The threshold contours of gold, silver, molybdenum, mercury, arsenic, and antimony define a large anomalous area of approximately 25 acres in the southern quadrant of the grid and a small area of approximately 5 acres in the eastern quadrant (see pls. 3-5).

TABLE 1. - Summary of statistical results for the soil sample grid, Bold Ruler prospect

Element	Reliable detection limit (ppm)	Number of samples below detection limit	Range of values		Geometric mean (ppm)	Median (ppm)	Calculated arithmetic mean (ppm)	Calculate standard deviation (ppm)	Threshold (ppm)
			Lowest (ppm)	Highest (ppm)					
Gold[1].....	0.099	352	<0.094	5.107	NAp	2.51	0.145	0.374	0.1[2]
Silver.....	.050	20	< .047	7.001	0.25	3.27	.437	.641	.6[2]
Copper.....	1	0	2.858	116.8	9.2	57.0	9.86	5.84	16[3]
Lead.....	NAp	0	5.795	47.72	14	21.0	14.8	4.42	24[3]
Zinc.....	NAp	0	15.72	263.7	98	124	103	40.1	138[2]
Molybdenum..	.50	48	<.473	24.73	1.1	12.1	1.74	2.67	2.5[3]
Mercury[1]....	.50	270	<.472	2.80	NAp	1.16	.624	.272	.8[2]
Arsenic.....	1	7	<.948	108.8	10.3	53.9	19.3	18.0	38[3]
Antimony[1]...	1	185	<.945	9.659	approx1.2	4.36	1.75	1.33	2.8[2]

NAp Not applicable.
[1]Statistical results are questionable because of the high number of samples below detection limits.
[2]Interpreted from the histogram.
[3]Interpreted from the cumulative frequency curve.

NOTE.--All statistics are based on the 100-ft sample spacing locations (436 samples). Those samples at 50-ft spacings (near the hydraulic pits) were eliminated to avoid high side bias.

Three other observations which can be made are: (1) a scattering of mercury and silver anomalies (pl. 4) trending south-southeastward from the workings, a direction which approximately mimics the strike of the T_{su} lapilli in the pit, may indicate a genetic relationship; (2) gold and to some extent the other trace elements form very distinct N-S trends (pls. 3-5) which may indicate strong fracture control; and (3) very fine, visible gold in soil placer samples closely parallels gold soil anomalies except for an unexplained trend in the east quadrant (pl. 3). Descriptions and gold weights of the soil placer samples are tabulated in table A-4.

Soil samples were not taken from dumps and workings, and most disturbances are very localized. Mining activity does not appear to have had a deleterious effect on sample quality except possibly for a few gold values. All elements were within a normal range for anomalous areas except for several extremely high gold analyses. Five soil samples contained gold in excess of 1 ppm; the highest value was 5.107 ppm. These are extremely high values which occur near the upper hydraulic pit and could easily result from contamination from the hydraulic pits.

CONCLUSIONS AND RECOMMENDATIONS

The Bold Ruler prospect bears many similarities to the nearby Sunnyside Mine. Like the Sunnyside Mine it is probably an epithermal, fracture controlled, disseminated gold deposit, and it is apparently hosted by an altered and welded rhyolite tuff of the Sunnyside Rhyolite series, the same host rock as the Sunnyside deposit. Geochemical patterns from soil and rock chip sample assays indicate there are two anomalous areas which underlie approximately 30 acres; the highest analysis obtained was 5.107 ppm gold. Soil and placer samples in streams to the north of the Bold Ruler prospect also indicate gold mineralization has occurred nearby. The Bold Ruler prospect merits additional evaluation to characterize possible resources, and the following is recommended:

1. Verify the anomalies by resampling.

2. Conduct a more detailed geologic mapping and petrographic sampling program in the area.

3. Conduct a geochemical and placer sampling program at close intervals in streams containing anomalous gold values.

4. Expand the soil sample grid to the east, south, and west.

5. Trench the anomalous areas to obtain larger samples and expose the bedrock for examination and sampling - particularly in the east quadrant.

6. Use a "shootback" electromagnetic geophysical survey to eliminate terrain interference and map the subtle structures in the area.

7. If unoxidized sulfide minerals are associted with gold, conduct an induced potential survey to determine the location and geometry of the mineralization.

If the preceding program is followed and results are indicative of a deposit, drilling would then be necessary to estimate resources.

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APPENDIX A.--SAMPLE ANALYSIS

TABLE A-1. - Analyses and descriptions of rock, soil, and stream sediment reconnaisance samples, Bold Ruler area
(see pl. 1 and fig. 3 for locations)
Analyses are given in ppm
[<, less than shown; --, not analyzed]

Sample no.	Sample type	Au	Ag	Cu	Pb	Zn	Mo	Hg	As	Sb	Tl	F	Ba	Sample Description
1	Random...	<0.095	<0.047	4.093	7.400	76.90	4.678	<0.478	1.475	<0.956	<0.956	--	--	Gray, crystal-rich tuff.
2[1]	Str. sed.	<.098	<.049	3.583	3.982	34.32	<.491	.7329	<.982	<.982	<.982	--	--	Float is rhyolite tuff and tectonic breccia in stream cobbles.
3	Select...	<.095	<.047	<.956	8.401	2.923	2.637	<.487	5.429	<.956	1.044[2]	--	--	Two in. quartz vein in white, argillized rhyolite tuff. Strike N. 33° E., dip 73° W.
4	Cont. chip.	<.097	<.048	2.178	17.38	12.03	3.355	.5233	<.978	<.978	<.978	--	--	Three-ft chip sample of highly argillized rhyolite tuff with quartz veinlets.
5	Select...	<.097	<.048	4.463	3.755	53.84	2.395	<.486	<.972	<.972	<.972	--	--	Reddish, pyritized, lithic tuff.
6	..do	<.099	.049	4.088	3.558	34.47	2.495	<.497	.994	<.994	<.994	--	--	Reddish, pyritized, rhyolitic tuff. with quartz veinlets.
7	Random...	<.097	<.048	<.972	4.752	49.88	5.329	<.486	1.632	1.774	<.972	--	--	Gray, pyritized rhyolite tuff.
8	..do.....	<.095	.0561	3.918	12.86	46.63	<.478	.7238	1.333	<.957	<.957	--	--	Dump sample from short, caved adit in colluvium.
9[1]	Str. sed.	<.095	<.047	4.824	7.756	43.97	<.478	1.374	1.934	<.957	<.957	--	--	Float is rhyolite tuff and flow-banded intrusive (?) rhyolite.
10[1]	..do.....	<.097	<.048	4.440	13.44	78.88	1.842	.9690	49.94	3.570	<.970	--	--	Float is rhyolite tuff, intrusive rhyolite, and tectonic breccia.
11[1]	..do.....	<.095	<.047	5.523	8.632	53.86	.8088	<.479	39.17	2.906	<.959	--	--	Float is welded, dark gray, crystal rich tuff and lithic tuff.
12[1]	..do.....	<.097	.0682	5.673	13.70	69.88	.5712	1.467	45.76	3.655	<.970	--	--	Float is rhyolite tuff, red intrusive (?) rhyolite, and tectonic breccia.
13	Random...	<.098	<.049	4.988	9.248	43.77	.7340	<.490	2.513	<.980	<.980	--	--	Sample of gouge from fault striking N. 10° E.
14[1]	Str. sed.	<.096	<.048	3.231	8.002	39.13	.6721	.5470	1.310	1.356	<.986	--	--	Float from small tributary to Marble Creek is rhyolite tuff.

TABLE A-1. - Analyses and descriptions of rock, soil, and stream sediment reconnaisance samples, Bold Ruler area--Con.

Sample no.	Sample type	Au	Ag	Cu	Pb	Zn	Mo	Hg	As	Sb	Tl	F	Ba	Sample Description
15[1]	Str. sed.	<0.100	<0.050	4.129	9.488	64.77	0.9363	<0.500	37.63	2.691	<1.00	--	--	Float is welded rhyolite tuff, lapilli tuff, and latite.
16[3]	Cont. chip.	<.007	<.3	--	--	--	--	--	<1.0	<1.0	--	220	--	15-ft chip sample of altered and iron-stained crystal-rich tuff.
17[1]	Str. sed.	<.097	<.048	2.481	2.967	52.87	.7032	<.487	26.32	2.360	<.974	--	--	Float is tectonic breccia, rhyolite tuff, and gray latite flow.
18	Str. sed.	<.094	.3034	14.60	19.95	77.40	4.537	.6941	48.67	1.864	1.812	--	--	Float is rhyolite tuff with iron-oxide in fractures.
19	Str. sed.	<.097	.1626	12.92	15.25	42.51	3.391	.4896	1.689	<.976	<.976	--	--	Float is rhyolite tuff.
20	Str. sed.	<.135	.8797	27.25	20.54	95.39	3.672	2.270	40.00	1.727	<1.35	--	--	Float is unaltered rhyolite tuff.
21	Str. sed.	.1998	.6065	11.97	19.45	103.0	3.119	<.868	35.42	<1.73	2.767	--	--	Stream drains hydraulic pits.
22	Str. sed.	<.097	.1400	4.440	14.66	69.70	3.960	.8052	54.93	2.928	<.970	--	--	Float is light-gray welded rhyolite tuff.
23	Random...	<.098	<.049	1.513	5.080	81.95	5.757	<.494	7.089	2.328	<.988	--	--	Purple-red weathering, flow-banded, intrusive rhyolite (?) or quartz latite (?).
24[1]	Str. sed.	<.096	<.048	3.943	4.828	42.01	.8833	.5650	3.966	1.520	<.967	--	--	Float is tectonic breccia and rhyolite tuff.
25	Cont. chip.	<.097	.0536	3.207	8.885	62.72	4.999	<.487	121.5	3.734	<.974	--	--	Four-ft-long chip sample across breccia and clay gouge zone striking N. 76° W., dipping 46° NE.
26[1]	Pan conc. only.	--	--	--	--	--	--	--	--	--	--	--	--	Pan conc. from Marble Creek bed.
27[1]	Str. sed.	<.098	<.049	2.438	5.949	40.59	<.492	.7860	2.381	1.073	<.984	--	--	Float is crystal-rich tuff.
28[3]	Select...	<.007	<.3	--	--	--	--	--	<1.0	<1.0	--	180	--	Fractured and iron-stained crystal-rich tuff.
29[3]	..do.....	<.007	<.3	--	--	--	--	--	<1.0	<1.0	--	250	--	Altered and iron-stained, crystal-rich tuff.

TABLE A-1. - Analyses and descriptions of rock, soil, and stream sediment reconnaisance samples, Bold Ruler area--Con.

Sample no.	Sample type	Au	Ag	Cu	Pb	Zn	Mo	Hg	As	Sb	Tl	F	Ba	Sample Description
30[1]	Str. sed.	<0.098	1.057	15.09	19.03	99.81	4.660	0.8703	54.54	3.909	<0.980	--	--	Float is altered rhyolite tuff and latite flow.
31[3]	Select...	.010	.500	<5	<80	61	7.4	2	44	<2	--	400	800	Gray lapilli tuff with iron-stained fractures.
32[1,3]	Pan conc. only.	--	--	--	--	--	--	--	--	--	--	--	--	Pan conc. only. Chemical analysis of conc. in table A-2. Sample from outlet of lower hydraulic pit.
33	Random...	<.098	<.049	1.785	6.940	90.53	3.334	<.490	2.031	<.980	<.980	--	--	Lavender-colored flow breccia with quartz veins.
34	..do.....	<.095	<.047	2.727	6.119	83.16	3.125	<.475	3.828	<.950	<.950	--	--	Purple-red weathering, flow-banded rhyolite porphyry with some limonite. Banding strikes N. 80° W., vertical dip.
35	..do.....	<.096	.2154	1.348	5.991	15.67	5.926	.6283	11.91	1.140	<.963	--	--	Argillized rhyolite tuff with abundant chalcedony.
36	..do.....	<.096	.2215	1.186	6.941	13.39	24.22	<.484	10.43	<.968	<.968	--	--	Argillized rhyolite tuff.
37	Select...	<.098	<.049	1.513	5.080	81.95	5.757	<.494	7.089	2.328	<.988	--	--	Light-gray rhyolite tuff, fractured iron-stained, some lapilli.
38[3]	Random...	.020	<.3	<5	<80	<2	<2	2	28.5	<2	--	490	900	White fault gouge and argillic soil with some lapilli tuff fragments.
39[3]	Cont. chip.	.012	<.3	--	--	--	--	--	190	<1.0	--	--	--	Across top of dump of main adit in fractured and argillized rhyolite (?) tuff.
40	..do.....	<.095	.0521	2.775	8.784	44.29	3.172	.6860	10.24	<.957	<.957	--	--	Two-ft chip sample of light-gray, lithic rhyolite tuff.
41[1,3]	Pan conc. only.	--	--	--	--	--	--	--	--	--	--	--	--	Sample from outlet of upper hydraulic pit.
42	Select...	<.097	.6833	3.292	5.297	54.77	9.243	<.489	29.48	1.368	<.978	--	--	Iron-stained, fractured, crystal-rich tuff with some lapilli in upper hydraulic pit. Fracture strikes N. 30° W., 65° NE.

TABLE A-1. - Analyses and descriptions of rock, soil, and stream sediment reconnaisance samples, Bold Ruler area--Con.

Sample no.	Sample type	Au	Ag	Cu	Pb	Zn	Mo	Hg	As	Sb	Tl	F	Ba	Sample Description
43	Cont. chip.	<0.097	0.3846	2.762	10.08	60.05	9.241	<0.488	37.66	1.418	<0.976	--	--	Two-ft chip sample across fractured, iron-stained, lapilli tuff. Strike N. 18° E., dip 76° E.
44[3]	..do.....	1.646	3.855	--	--	--	--	--	110	<3.0	--	60	--	Across 10-ft-wide dump at base of hydraulic pit. Gray rhyolite (?) and one crystal-rich tuff.
45	..do.....	<.098	<.049	3.751	<.356	62.64	4.459	.6298	1.320	<.986	<.986	--	--	Two-ft chip sample of light-gray, lithic tuff.
46	Select...	<.097	.1091	4.175	10.57	27.68	4.476	<.485	20.74	1.115	<.970	--	--	Argillized and iron-stained, welded rhyolite tuff with lapilli from small pit.
47	..do.....	<.097	<.048	4.743	6.865	16.26	6.550	<.485	4.203	1.317	<.970	--	--	Argillized and manganese-stained, crystal-rich tuff without lapilli from small pit.
48	..do.....	<.097	<.048	6.756	9.406	68.62	3.241	<.488	8.325	1.365	<.976	--	--	Argillized, crystal-rich tuff from small pit.
49	..do.....	<.096	.1136	8.095	11.59	81.86	4.016	<.482	37.16	1.191	<.965	--	--	Argillized, crystal-rich tuff with some lapilli from small pit.
50	Random...	<.098	.4127	3.772	7.184	53.69	4.762	.6480	42.58	2.309	<.980	--	--	Propyllitized (?) and pyritized, crystal-rich, welded rhyolite tuff with some lapilli.
51	..do.....	<.099	1.260	3.840	7.028	67.18	3.825	.5845	8.699	<.992	<.992	--	--	Altered, crystal-rich rhyolite tuff with iron-stained fractures.
52	Select...	.3064	2.503	3.357	5.91	52.23	4.363	<.491	26.34	1.527	<.982	--	--	Argillized, crystal-rich tuff from caved adit in colluvium.
53	..do.....	<.096	1.774	5.225	5.545	39.75	4.663	.5075	40.55	1.871	<.968	--	--	Propyllitized (?) and pyritizd, crystal-rich, welded rhyolite tuff with some lapilli from dump of 35-ft-long caved adit.
54	Random...	<.095	.7781	4.044	9.565	39.26	11.35	<.478	144.0	1.381	<.957	--	--	Argillized (?), crystal-rich, welded tuff with some lapilli.

TABLE A-1. - Analyses and descriptions of rock, soil, and stream sediment reconnaisance samples, Bold Ruler area--Con.

Sample no.	Sample type	Au	Ag	Cu	Pb	Zn	Mo	Hg	As	Sb	Tl	F	Ba	Sample Description
55	Random...	<0.098	0.6248	2.335	7.213	32.92	16.17	0.6068	18.65	2.326	<0.984	--	--	White, argillized rhyolite tuff with silicified fractures.
56	Cont. chip.	<.097	<.048	1.701	9.667	31.52	3.801	<.486	21.66	2.179	<.972	--	--	One-ft chip sample of lavender-colored rhyolite intrusive (?).
57[3]	Soil.....	.026	<.7	<5	<80	97	<2	<2	<2	<2	--	460	100	White, fault gouge and crystal-rich tuff.
58	Select...	<.097	.8812	1.925	6.553	27.61	8.767	.8359	56.37	5.892	<.976	--	--	Crystal-rich tuff with iron-filled fractures, no lapilli.
59[3]	Cont. chip.	<.007	<.3	<5	<80	68	5.2	<2	<2	<2	--	64	400	Ten-ft-long chip sample across N. 40° E. fracture set in reddish intrusive rhyolite.
60[3]	Random...	.008	<.3	<5	<80	76	2.7	<2	<2	<2	--	64	400	Iron-stained, lightly brecciated, intrusive (?) rhyolite.
61[3]	..do.....	.008	<.3	<5	<80	130	7.5	<2	48	<2	--	100	400	Iron-stained, autobrecciated, fractured, intrusive rhyolite; possible flowdome.
62[3]	Chip.....	<.007	<.3	<5	<80	66	<2	2	<2	<2	--	100	400	Two-ft-chip sample across vertical, N. 50° E. fracture set in ferruginous and silicified, intrusive rhyolite.
63[3]	..do.....	<.007	<.3	--	--	--	--	--	<3.0	<3.0	--	150	--	Brecciated, iron-stained, reddish rhyolite porphyry intrusive (?).
64[3]	Random...	<.007	<.3	--	--	--	--	--	<100	<100	--	160	--	Crystal-rich, white tuff in road cut.
65[3]	..do.....	.010	<.3	--	--	--	--	--	3.7	<1.0	--	110	--	Crystal-rich, white tuff at collar of collapsed shaft.
66[3]	..do.....	<.007	<.3	--	--	--	--	--	<1.0	91.0	--	130	--	Crystal-rich, white tuff from dump.
67[1]	Pan conc. only.	--	--	--	--	--	--	--	--	--	--	--	--	Sample from small hydraulic pit.

TABLE A-1. - Analyses and descriptions of rock, soil, and stream sediment reconnaisance samples, Bold Ruler area--Con.

Sample no.	Sample type	Au	Ag	Cu	Pb	Zn	Mo	Hg	As	Sb	Tl	F	Ba	Sample Description
68[1]	Pan conc. only.	--	--	--	--	--	--	--	--	--	--	--	--	Sample from small hydraulic pit.
69[1]	Str. sed.	<0.097	0.4453	10.84	17.48	88.61	5.005	1.224	66.74	3.268	<0.978	--	--	Float is rhyolite tuff and latite.
70	Select...	<.098	<.049	2.470	7.815	22.83	5.075	<.494	2.433	<.988	<.988	--	--	Argillized and iron-stained crystal-rich tuff from small pit; abundant tectonic breccia in float.
71[1]	Str. sed.	<.095	<.047	5.676	14.22	72.07	3.725	.8334	91.79	4.822	<.956	--	--	Float is rhyolite tuff, latite and tectonic breccia.
72	Random...	<.097	1.334	3.631	10.98	70.53	5.551	<.485	5.485	1.212	1.287	--	--	Brown to gray, laminated Dewey Sediments (?).
73[3]	Chip.....	<.007	<.3	--	--	--	--	--	41	<3.0	--	60	--	Brecciated, iron-stained, reddish rhyolite porphyry intrusive (?).
74[1]	Pan conc. only.	--	--	--	--	--	--	--	--	--	--	--	--	Float is rhyolite tuff and intrusive rhyolite.
75[3]	Chip.....	.013	<.3	--	--	--	--	--	280	<1.0	--	260	--	Iron-stained, silicified rhyolite tuff in pit.
76	Select...	<.096	<.048	2.967	8.941	45.54	11.26	<.481	31.68	5.682	<.963	--	--	Highly silicified and altered rhyolite tuff or possibly Dewey Sediments (?).
77	..do.....	<.099	.8759	2.431	12.95	6.338	14.70	<.496	109.9	3.292	<.992	--	--	Argillized rhyolite tuff or Dewey Sediments with silicified fractures.
78	..do.....	<.097	.0788	4.673	8.471	30.89	11.43	.9035	52.96	5.121	<.972	--	--	Lavender-red weathering, gray, welded rhyolite tuff.
79[3]	Chip.....	<.007	<.3	--	--	--	--	--	5.4	3.3	--	430	--	Twenty-ft chip sample on outcrop of fractured, iron-stained, light-gray tuff.
80[3]	Soil.....	<.007	<.3	--	--	--	--	--	19.3	5.5	--	500	--	Soil of rhyolite tuff.
81[3]	Chip.....	<.007	<.3	--	--	--	--	--	49	3.3	--	120	--	Brecciated, iron-stained, crystal-rich tuff.

TABLE A-1. - Analyses and descriptions of rock, soil, and stream sediment reconnaisance samples, Bold Ruler area--Con.

Sample no.	Sample type	Au	Ag	Cu	Pb	Zn	Mo	Hg	As	Sb	Tl	F	Ba	Sample Description
82[3]	Chip.....	<0.007	<0.3	--	--	--	--	--	10.7	<3.0	--	250	--	Brecciated, silicified and argillized rhyolite tuff.
83[3]	Random...	<.007	<.3	--	--	--	--	--	230	11.4	--	120	--	Argillized rhyolite tuff (?) with iron-stained fractures.
84[3]	Chip.....	<.007	<.3	--	--	--	--	--	190	<3.0	--	390	--	Iron-stained and argillized, buff weathering tuff.
85[3]	..do.....	<.007	<.3	--	--	--	--	--	65	5.1	--	570	--	Iron-stained rhyolite tuff.
86[3]	..do.....	<.007	<.3	--	--	--	--	--	74	94	--	180	--	Tuffaceous, highly silicified Dewey Sediments. Strike E-W; dip 70° N.
87[3]	..do.....	<.007	<.3	--	--	--	--	--	9.9	<3.0	--	240	--	Do.
88	..do.....	<.098	.0936	1.317	7.726	83.53	5.143	.6507	54.52	3.148	<.982	--	--	Eight-in. chip sample of tan to lavender Dewey Sediments or laminated tuff.
89[3]	Random...	<.007	<.3	--	--	--	--	--	6.1	<1.0	--	120	--	Light-gray, altered lapilli tuff from dump of 50-ft-long caved adit.
90[3]	..do.....	<.007	<.3	--	--	--	--	--	3.7	<1.0	--	140	--	Light-gray tuff from dump of 50-ft-long caved adit.
91[3]	..do.....	.040	<.3	<5	<80	<2	7.4	2	21.9	<2	--	80	400	Highly argillized and fractured rhyolite tuff or intrusive rhyolite with limonite and silica-filled fractures.
92[3]	..do.....	<.007	<.3	<5	<80	58	4.9	2	<2	<2	--	160	600	Fractured and iron- and manganese-stained intrusive rhyolite.
93[3]	..do.....	<.007	<.3	<5	<80	58	5.4	<2	10	<2	--	470	800	Lavender-colored rhyolite float with flow banding.
94[3]	..do.....	.008	<.3	<5	<80	84	8.9	2	28.8	<2	--	100	400	Altered, lavender-colored rhyolite tuff with iron-staining.
95[3]	..do.....	<.007	<.3	<5	<80	100	5.1	<2	17.3	<2	--	110	400	Argillized, lavender, iron-stained rhyolite.
96[3]	Chip.....	.037	<.7	<5	<80	<2	<2	<2	11	<2	--	610	600	Light-gray to lavender, flow-banded, iron-stained intrusive (?) rhyolite.

TABLE A-1. - Analyses and descriptions of rock, soil, and stream sediment reconnaisance samples, Bold Ruler area--Con.

Sample no.	Sample type	Au	Ag	Cu	Pb	Zn	Mo	Hg	As	Sb	Tl	F	Ba	Sample Description
97[1,3]	Str. sed.	0.032	<0.7	<5	<80	89	15	<2	8	<2	--	650	700	Float is iron-stained rhyolite tuff, lapilli tuff, tectonic breccia, and vitrophere. Chemical analysis of concentrate in table A-2.
98[1,3]	..do.....	.032	<.7	<5	<80	<2	<2	<2	9	<2	--	590	800	Float is mostly rhyolite tuff. Chemical analysis of concentrate in table A-2.

[1]Pan concentrate sample taken at these locations. See Table A-2 for description.
[2]Underlined analyses indicate anomalous values; normally anomalous preceded by < are considered to be below detection limit and are not anomalous.
[3]Analysis by USBM Reno Research Center (all others by Geochemical Services, Inc.)

TABLE A-2. - Summary of reconnaissance placer samples from the Bold Ruler area (see pl. 1 and fig. 3 for locations)

Sample no.	Sample weight[1] (gm)	Concentrate weight		Gold weight[3] (mg)	Descriptions
		Magnetic (gm)	Non-magnetic (mg)		
2	49.73	0	49.73	0	
9	69.28	0	69.28	0	
10	65.60	0	65.60	0	
11	36.62	0	36.62	0.008	Gold extracted by amalgamation, VVVF, bright, subangular.
12	61.86	0	61.86	0.110	Gold extracted by amalgamation, VVVF, bright, subrounded to angular.
14	68.78	0	68.78		
15	68.32	0	68.32	0	
17	47.49	0	47.49	0	
24	37.53	0	37.53	0	
26	23.76	0	23.76	0.006	Gold extracted by amalgamation, VVVF, bright, subangular.
27	42.43	0	42.43	0	
30	4.80	0	4.80	0	
32	6050	0.83	50.18	0.982	Gold extracted by amalgamation, VVVF, bright, subangular. Trace of black sand. Conc. analysis[2]: Au = 0.289, Ag = 1.398, Cu = <2, Pb = <30, Zn = 130, Mo = 16, F = 250, Hg = <2, As = 64, Sb = <2, Ba = 840.
41	57.13	0	57.13	2.707	Gold extracted by amalgamation, VVVF, very angular.
67	33.28	0	33.28	0.130	Gold extracted by amalgamation, VVVF, bright, subangular.
68	22.13	0	22.13	0	
69	2.37	0	2.37	0	
71	48.84	0	48.84	0.024	Gold extracted by amalgamation, VVVF, bright, subangular to angular.
74	33.74	0	33.74	0	
97	88.0	0	58.0	0	Conc. analysis [2]: Au = 0.027, Ag = 1.576, Cu = <2, Pb = <30, Zn = 41, Mo = 9.5, F = 250, Hg = <2, As = 6, Sb = <2, Ba = 710, W = <6.

TABLE A-2. - Summary of reconnaissance placer samples from the Bold Ruler area--Con.

Sample no.	Sample weight[1] (gm)	Concentrate weight		Gold weight[3] (mg)	Descriptions
		Magnetic (gm)	Non-magnetic (mg)		
98	61.51	0.15	36.88	0	Conc. analysis[2]: Au = <0.007, Ag = <0.3, Cu = <2, Pb = <30, Zn = 50, Mo = 19, F = 240, Hg = <2, As = 2, Sb = <2, Ba = 670, W = <6.

[1]Samples were heaping 14-in. pans, +1/4 in. fraction was removed in field.
[2]Analyses in ppm by USBM Reno Research Center.
[3]Only samples with visible gold under microscope were amalgamated and weighed.

TABLE A-3. - Analyses from soil sample grid, Bold Ruler prospect

(analyses are given in parts per million)

No.	Coordinates		Au	Ag	Cu	Pb	Zn	Mo	As	Hg	Sb
	X	Y									
1....	0.0	20.0	<0.0960	<0.0480	13.8900	26.4000	111.2000	0.9063	4.0810	<0.4830	<0.9670
2....	1.0	20.0	<.0960	.0724	14.8500	19.3200	110.2000	1.4760	<.9650	1.6970	<.9650
3....	2.0	20.0	<.0990	.1222	10.7800	16.4100	72.9100	1.1040	1.5750	<.4960	1.0100
4....	3.0	20.0	<.0970	<.0480	8.1640	8.9120	47.4500	.8570	2.3080	.5989	1.2310
5....	4.0	20.0	<.0940	.1069	14.4100	18.0600	97.5600	1.0760	4.2830	.5464	1.8390
6....	5.0	20.0	<.0990	.1108	12.3800	17.5200	91.5700	<.4940	3.3710	<.4940	<.9880
7....	6.0	20.0	<.0960	.0796	13.6100	16.5100	117.8000	.7827	4.2490	<.4800	<.9610
8....	7.0	20.0	<.0990	.1137	10.5300	13.7400	84.1500	.6125	3.6890	.6347	1.5210
9....	8.0	20.0	<.0980	<.0490	6.0010	12.1700	45.7800	.8625	<.9800	.5470	1.5290
10....	9.0	20.0	<.0990	.2199	13.3800	16.8300	95.3800	1.6810	3.0860	1.6350	1.6780
11....	10.0	20.0	<.0960	.1516	15.5300	20.8100	113.7000	1.0930	3.5920	.5365	1.9680
12....	11.0	20.0	<.0950	.0988	13.9400	18.2000	101.9000	1.2070	1.2640	<.4780	1.6020
13....	12.0	20.0	<.0960	<.0480	13.1000	22.8200	170.2000	.5726	6.2360	<.4800	1.7150
14....	13.0	20.0	<.0970	<.0480	13.4100	17.5900	218.0000	<.4850	5.2520	<.4850	1.4670
15....	14.0	20.0	<.0940	<.0470	12.7900	15.9300	202.3000	<.4730	7.0870	<.4730	<.9460
16....	15.0	20.0	<.0990	.2198	12.7100	15.1100	115.4000	<.4950	9.5800	<.4950	1.8190
17....	16.0	20.0	<.0960	.2536	13.8800	20.9400	149.0000	1.1120	14.3300	<.4810	1.5110
18....	17.0	20.0	<.0960	.4573	11.2600	18.8100	118.1000	1.3780	6.9480	<.4800	1.4490
19....	18.0	20.0	<.0960	.1451	7.5740	13.0500	96.7500	.9755	6.3780	<.4840	<.9680
20....	19.0	20.0	<.0950	.1520	10.3300	18.5700	107.4000	1.1890	4.3900	<.4780	1.3530
21....	20.0	20.0	<.0970	.1528	11.3500	16.5000	157.9000	<.4880	4.2240	<.4880	<.9760
22....	0.0	19.0	<.0980	.0855	5.8670	15.3800	41.4700	.8748	2.2580	<.4910	<.9820
23....	1.0	19.0	<.0970	.1128	15.9500	15.0700	92.5900	1.2700	12.0400	<.4870	<.9740
24....	2.0	19.0	<.0950	.0785	11.7400	14.2300	68.4500	<.4780	15.8600	<.4780	<.9560
25....	3.0	19.0	<.0950	.0720	10.9100	14.9700	115.1000	1.2140	11.8400	<.4780	<.9570
26....	4.0	19.0	<.0960	.1064	19.6700	18.4900	208.2000	1.4760	10.6800	.9630	1.7920
27....	5.0	19.0	<.0960	.0802	14.5700	16.6900	107.5000	<.4830	4.6610	.4830	<.9670
28....	6.0	19.0	<.0980	.1084	17.7700	22.2100	71.9700	2.1240	14.7200	.4930	2.2890
29....	7.0	19.0	<.0950	.1153	15.3000	18.9200	70.3400	1.0280	9.6880	<.4760	2.1370

TABLE A-3. - Analyses from soil sample grid, Bold Ruler prospect--Con.

No.	Coordinates X	Coordinates Y	Au	Ag	Cu	Pb	Zn	Mo	As	Hg	Sb
30....	8.0	19.0	<0.0980	0.2178	14.8500	18.1200	135.0000	<0.4900	10.7300	<0.4900	<0.9800
31....	9.0	19.0	<.0970	.1024	9.4340	15.0100	59.6000	1.9970	3.5140	1.3910	1.6000
32....	10.0	19.0	<.0960	.1518	9.6080	14.3300	144.3000	1.0950	8.4690	<.4800	<.9610
33....	11.0	19.0	<.0970	.1528	10.7000	13.2800	136.4000	<.4870	3.8850	<.4870	<.9740
34....	12.0	19.0	<.0960	.1741	8.4680	13.2400	41.6000	1.2210	8.8480	<.4830	<.9670
35....	13.0	19.0	<.0960	.1342	9.9200	13.7200	115.0000	<.4820	5.2540	<.4820	<.9650
36....	14.0	19.0	<.0960	.0938	10.9100	15.0100	132.0000	1.2460	4.8190	.7018	<.9610
37....	15.0	19.0	<.0990	<.0490	10.3300	17.9500	141.0000	1.0990	5.6020	<.4950	1.0890
38....	16.0	19.0	<.0970	.2309	15.5100	17.5800	172.4000	.5520	5.4930	<.4890	<.9780
39....	17.0	19.0	<.0980	.1010	9.4380	19.8600	108.8000	<.4900	8.7890	<.4900	<.9800
40....	18.0	19.0	<.0980	.6546	11.5400	19.8100	85.5000	.7093	6.0120	<.4930	<.9860
41....	19.0	19.0	<.0940	<.0470	8.1600	24.8700	83.6700	.9100	5.2250	<.4740	1.4520
42....	20.0	19.0	<.0950	.1154	8.6100	15.2200	106.8000	.4808	20.5900	<.4780	<.9560
43....	0.0	18.0	<.0970	<.0480	3.9930	17.1400	23.3300	1.4000	2.4530	<.4850	<.9700
44....	1.0	18.0	<.0980	.0504	6.3100	10.2600	75.8900	1.6100	4.2690	2.8000	<.9840
45....	2.0	18.0	<.0970	.0837	10.1200	13.7300	85.6100	1.2640	6.0600	<.4850	.9956
46....	3.0	18.0	<.0970	<.0480	11.2600	14.8200	91.1800	.9616	6.2790	<.4870	1.0150
47....	4.0	18.0	<.0960	.1054	11.3600	13.3900	75.0800	1.6680	5.9500	<.4820	<.9650
48....	5.0	18.0	<.0970	.1253	8.5420	13.8200	99.6200	.9862	7.8110	.6488	<.9720
49....	6.0	18.0	<.0960	.1053	19.3500	18.5600	83.8300	1.7460	6.6610	.6116	1.8780
50....	7.0	18.0	<.0950	.1887	14.2400	16.0100	82.6600	1.6040	10.6300	1.1870	1.5550
51....	8.0	18.0	<.0960	.0520	7.3050	13.2900	49.7900	1.4140	1.6560	<.4840	1.8720
52....	9.0	18.0	<.0980	.2237	19.6600	26.3500	176.4000	1.8010	5.3300	<.4930	<.9860
53....	10.0	18.0	<.0960	.1786	9.8640	16.0100	68.9900	1.4600	5.0650	<.4830	<.9670
54....	11.0	18.0	<.0940	.1498	8.1760	13.3200	85.8400	1.1120	5.6210	<.4740	<.9480
55....	12.0	18.0	<.0980	.1759	8.3710	14.3400	144.8000	.9387	3.6030	<.4900	<.9800
56....	13.0	18.0	<.0980	.1332	12.1900	19.0100	135.5000	<.4910	5.6160	<.4910	<.9820
57....	14.0	18.0	<.0970	.0701	9.1360	11.4400	89.6800	.4899	6.0300	.8843	<.9760
58....	15.0	18.0	<.0960	.0875	10.4400	13.4400	79.3700	1.0100	2.7480	<.4810	<.9630
59....	16.0	18.0	<.0980	.1113	6.6950	11.3600	71.3000	1.4380	3.6160	.4975	<.9860
60....	17.0	18.0	<.0990	.0669	4.0730	20.7400	70.9700	.6985	2.8280	<.4950	<.9900

TABLE A-3. - Analyses from soil sample grid, Bold Ruler prospect--Con.

No.	Coordinates X	Coordinates Y	Au	Ag	Cu	Pb	Zn	Mo	As	Hg	Sb
61....	18.0	18.0	<0.0980	0.1902	8.1650	12.2100	70.9200	1.5220	3.0680	<0.4910	<0.9820
62....	19.0	18.0	<.0980	<.0490	3.4430	13.9700	27.9100	.8116	2.8250	.6950	<.9840
63....	20.0	18.0	<.0960	.0902	10.2800	12.2100	89.4900	<.4820	3.3150	<.4820	<.9650
64....	0.0	17.0	<.0950	.0503	3.7590	12.8800	28.0700	1.4000	11.9100	<.4760	<.9520
65....	1.0	17.0	<.0980	<.0480	6.8920	9.8330	48.3400	1.4650	5.8230	<.4890	<.9780
66....	2.0	17.0	<.0950	.0603	7.8900	13.2100	86.6200	1.4380	6.8160	.7241	<.9560
67....	3.0	17.0	<.0990	.1056	9.3770	11.3900	86.9900	<.4950	4.2170	<.4950	<.9900
68....	4.0	17.0	<.0970	.0637	8.8960	10.5700	58.6200	.4993	2.8710	<.4860	<.9720
69....	5.0	17.0	<.0960	.1399	13.2600	18.5600	76.4100	.8368	4.4970	<.4830	1.1600
70....	6.0	17.0	<.0980	.1208	10.8600	17.6800	107.2000	.6214	6.9950	.8181	<.9800
71....	7.0	17.0	<.0950	.2317	9.2410	12.8700	70.8400	.6747	4.0470	<.4760	<.9520
72....	8.0	17.0	<.0950	.2123	12.8400	13.9400	90.3400	.7759	5.7350	.5598	<.9560
73....	9.0	17.0	<.0970	.1186	6.5170	10.9300	61.9300	.7289	5.0620	<.4850	<.9700
74....	10.0	17.0	<.0960	.0629	9.0140	16.0400	72.3000	1.3430	7.1880	<.4830	<.9670
75....	11.0	17.0	<.0970	.2232	10.0500	13.3700	95.1200	1.0420	2.3080	.5889	1.3410
76....	12.0	17.0	.1685	.4024	11.0400	18.2500	202.1000	3.5640	54.5500	2.0220	3.8610
77....	13.0	17.0	<.0980	.1981	10.7900	15.4700	165.4000	<.4900	6.8030	.9114	<.9800
78....	15.0	17.0	<.0980	<.0490	5.7930	14.5400	73.1900	.6643	3.7220	.5503	1.0600
79....	16.0	17.0	<.0980	<.0490	4.7350	12.6300	44.5000	<.4910	2.7500	<.4910	<.9820
80....	17.0	17.0	<.0960	.0819	7.5960	14.0700	162.5000	1.1020	3.7230	1.0130	<.9630
81....	18.0	17.0	<.0980	.1084	5.1560	10.6200	85.9500	1.9500	11.5500	.7094	<.9880
82....	19.0	17.0	<.0970	.1029	8.4750	13.3800	169.0000	.7924	4.7100	<.4860	.9720
83....	20.0	17.0	<.0950	.0932	5.1560	7.2180	50.7400	.7136	3.7050	<.4780	<.9570
84....	0.0	16.0	<.0970	<.0480	2.8580	10.5500	15.7200	.5717	1.6580	<.4860	<.9720
85....	1.0	16.0	<.0970	.0696	7.0420	11.6200	72.4700	1.4300	4.4270	<.4850	<.9700
86....	2.0	16.0	<.0950	<.0470	5.5770	7.2250	57.9000	.6203	3.1540	<.4750	<.9500
87....	3.0	16.0	<.0970	.1583	11.3000	13.1600	93.4900	<.4880	4.9490	<.4880	<.9760
88....	4.0	16.0	<.0970	.0758	11.1500	15.7600	61.1600	1.1360	3.9870	.6403	<.9780
89....	5.0	16.0	<.0940	.0735	8.0860	14.3700	73.6600	1.6790	5.3420	.5133	<.9460
90....	6.0	16.0	<.0950	.1721	8.8780	13.7000	81.8000	.8846	3.8430	<.4760	<.9520
91....	7.0	16.0	<.0970	.3269	15.2900	20.1400	83.0400	1.0390	4.9630	<.4860	<.9720

TABLE A-3. - Analyses from soil sample grid, Bold Ruler prospect--Con.

No.	Coordinates X	Coordinates Y	Au	Ag	Cu	Pb	Zn	Mo	As	Hg	Sb
92....	8.0	16.0	<0.0970	0.1591	6.2150	12.5400	83.0100	0.7676	3.5920	0.6233	<0.9760
93....	9.0	16.0	<.0950	.1769	6.2710	15.8700	41.6500	1.4750	15.6600	<.4770	<.9540
94....	10.0	16.0	<.0960	.0623	12.0700	24.5900	109.4000	1.5130	16.9500	<.4810	3.0750
95....	11.0	16.0	<.0950	.0790	10.6400	14.5000	144.0000	.6404	3.8580	<.4780	.9560
96....	12.0	16.0	<.0960	.0840	11.7200	15.6600	182.2000	.4959	8.5310	<.4810	1.1390
97....	13.0	16.0	<.0980	.1051	8.0540	13.1600	68.4500	.8643	4.9450	<.4930	<.9860
98....	14.0	16.0	<.0980	.1514	12.5400	32.7800	122.1000	.7148	9.7790	<.4900	<.9800
99....	15.0	16.0	<.0980	.0508	6.4640	11.0300	57.4900	<.4900	3.8170	<.4900	<.9800
100....	16.0	16.0	<.0990	.1022	16.7500	23.2900	208.4000	<.4990	6.8290	<.4990	<.9980
101....	17.0	16.0	<.0970	.0562	9.8350	13.2300	155.0000	<.4880	4.5580	<.4880	<.9760
102....	18.0	16.0	<.0960	.3975	11.6100	18.2300	70.7200	1.0760	13.2200	<.4830	1.1760
103....	19.0	16.0	<.0980	.0956	10.6600	14.3400	188.5000	.8569	12.3600	<.4900	<.9800
104....	20.0	16.0	<.0980	.0807	11.6200	14.0400	137.9000	<.4930	5.1780	<.4930	<.9860
105....	0.0	15.0	<.0960	.1621	14.0600	17.8000	148.1000	1.7130	39.4700	.8022	4.0460
106....	1.0	15.0	<.0960	.1057	7.2240	20.0500	59.4800	1.0840	3.8690	.7417	1.0030
107....	2.0	15.0	<.0960	.0537	5.6200	11.7900	36.2500	<.481	3.2200	.4862	<.9630
108....	3.0	15.0	<.0970	.0869	8.3910	12.2200	46.7400	1.2490	2.5190	<.4860	<.9720
109....	4.0	15.0	<.0970	.0521	8.5250	7.4560	52.6500	1.0750	7.2450	.6434	7.2720
110....	5.0	15.0	<.0940	.1268	8.7080	14.7800	78.0600	.7611	3.2910	<.4740	<.9480
111....	6.0	15.0	<.0950	.2367	12.3200	16.0600	99.2500	1.1560	4.1290	1.0230	<.9500
112....	7.0	15.0	.2276	.4583	7.8150	12.9700	61.4600	.6157	4.9870	<.4890	.9780
113....	8.0	15.0	<.0950	.2324	9.8360	21.3900	87.9600	1.3610	10.4200	<.4750	1.2230
114....	9.0	15.0	<.0960	.1414	6.2300	12.6600	52.4900	2.7700	9.7520	.7572	1.9340
115....	10.0	15.0	<.0960	.1231	9.2660	26.8400	58.4600	2.1960	17.9700	1.0720	4.9300
116....	11.0	15.0	<.0990	.3020	8.8960	12.5900	105.3000	.9569	3.2950	<.4990	<.9980
117....	12.0	15.0	<.0970	.0500	9.2870	13.6500	109.9000	.7844	9.4650	<.4880	<.9760
118....	13.0	15.0	<.0970	.1276	10.8400	18.1400	227.0000	.6036	13.4500	<.4890	1.6370
119....	14.0	15.0	<.0960	.1992	11.8800	14.1100	137.3000	.5865	10.7300	<.4820	<.9650
120....	15.0	15.0	<.0990	.1516	10.9700	17.0600	97.9300	.6361	6.0600	<.4960	<.9920
121....	16.0	15.0	<.0980	.1363	10.8900	14.4100	134.3000	<.4920	4.8590	<.4920	<.9840
122....	17.0	15.0	<.0950	.0967	11.4300	13.1300	147.3000	<.4770	6.2920	<.4770	<.9540

TABLE A-3. - Analyses from soil sample grid, Bold Ruler prospect--Con.

No.	Coordinates X	Coordinates Y	Au	Ag	Cu	Pb	Zn	Mo	As	Hg	Sb
123....	18.0	15.0	<0.0990	0.0679	7.7310	15.9800	47.8700	0.8828	6.9380	1.0180	<0.9920
124....	19.0	15.0	<.0970	<.0480	9.0330	12.3300	105.7000	.5566	9.9850	<.4850	<.9700
125....	20.0	15.0	<.0960	.1445	14.1900	15.2300	152.0000	.7385	6.7980	<.4830	<.9670
126....	0.0	14.0	<.0960	.0568	3.2690	10.8300	38.2100	.8673	<.9680	<.4840	<.9680
127....	1.0	14.0	<.0990	.1633	8.0240	17.0800	67.7200	<.4950	15.8000	.5969	<.9900
128....	2.0	14.0	<.0940	.1267	6.3810	14.7400	75.6200	<.4740	<.9480	<.4740	<.9480
129....	3.0	14.0	<.0970	<.0480	6.6560	21.7200	43.2500	<.4890	<.9780	<.4890	<.9780
130....	4.0	14.0	<.0980	<.0490	4.7740	19.9800	39.5700	1.0400	5.5310	.7810	1.1800
131....	5.0	14.0	<.0970	.2371	8.1730	12.6900	40.3500	1.4750	3.5230	.5910	1.0940
132....	6.0	14.0	<.0960	.4254	11.3000	15.0900	87.9100	2.0560	5.6990	.5092	1.7720
133....	7.0	14.0	<.0980	.5584	11.9100	16.3200	87.1200	1.1920	6.7000	.7085	1.5210
134....	8.0	14.0	<.0950	.2571	11.2100	17.6600	107.7000	2.0270	10.7400	.7729	1.5780
135....	9.0	14.0	<.0940	.2766	10.1300	14.3900	63.1200	4.1210	16.3100	.6310	1.3670
136....	10.0	14.0	<.0960	.3428	6.9550	15.7000	55.5800	1.5160	14.6700	.7341	1.1990
137....	11.0	14.0	<.0980	.4961	9.2300	14.5500	155.4000	1.9400	12.5100	<.4930	<.9860
138....	12.0	14.0	<.0950	.1297	7.5600	11.1900	63.7000	.8329	6.2130	<.4780	<.9570
139....	13.0	14.0	<.0990	.1656	10.7400	17.1300	97.9000	1.0730	13.2600	<.4950	1.3110
140....	14.0	14.0	<.0980	<.0490	7.6850	8.6060	42.8600	.8357	4.6350	.5752	<.9820
141....	15.0	14.0	<.0990	.2111	7.7300	16.3900	188.6000	.9782	8.9690	<.4990	<.9980
142....	16.0	14.0	<.0980	.3137	11.9200	18.2900	229.2000	1.2690	8.1900	<.4930	<.9860
143....	17.0	14.0	<.0960	.2355	11.7200	15.3600	208.7000	.5443	5.8270	<.4810	<.9630
144....	18.0	14.0	<.0980	.1084	16.5400	9.5170	146.1900	.6695	5.1240	<.4930	1.1010
145....	19.0	14.0	<.0990	.3545	10.6200	18.3900	99.5900	1.2930	8.9580	<.4970	1.0940
146....	20.0	14.0	<.0970	.0756	13.7700	17.2700	110.3000	1.0670	5.8380	<.4850	1.2410
147....	0.0	13.0	<.0990	.4261	4.0630	11.1900	109.8000	1.0750	2.3670	<.4960	<.9920
148....	1.0	13.0	<.0990	.1955	4.5140	33.4000	96.6500	<.4980	10.9500	<.4980	<.9960
149....	2.0	13.0	<.0990	.2402	4.9170	28.7800	83.6200	.8584	15.9600	<.4960	<.9920
150....	3.0	13.0	<.0980	.3955	5.8760	20.1500	83.8600	1.4480	25.4700	<.4900	1.0130
151....	4.0	13.0	<.0970	.2864	10.5900	27.3700	114.4000	.5749	12.1900	<.4860	<.9720
152....	5.0	13.0	<.0970	.1885	8.5230	16.3200	70.7400	.9681	15.8100	<.4880	1.2530
153....	6.0	13.0	<.0980	.3452	7.1070	8.9870	59.0900	.8366	2.8380	<.4920	<.9840

TABLE A-3. - Analyses from soil sample grid, Bold Ruler prospect--Con.

No.	Coordinates		Au	Ag	Cu	Pb	Zn	Mo	As	Hg	Sb
	X	Y									
154....	7.0	13.0	<0.0970	0.9602	6.9200	14.2000	152.2000	3.4230	21.2200	<0.4880	1.3140
155....	8.0	13.0	<.0950	1.1650	9.4740	15.9300	79.9000	6.8350	33.7600	<.4770	1.6450
156....	9.0	13.0	<.0950	.2840	4.5140	8.1440	24.8800	.5775	12.5400	<.4780	.9804
157....	10.0	13.0	<.0980	.4885	10.3900	16.3000	97.2000	1.4640	17.9300	<.4940	<.9880
158....	11.0	13.0	<.0950	.3515	7.9250	19.2100	69.2800	3.1980	17.9300	.8272	1.6320
159....	12.0	13.0	.4253	.7080	10.9900	16.7400	95.4100	6.3250	46.4700	.9936	3.8330
160....	13.0	13.0	<.0950	.1264	13.0700	14.0300	126.1000	1.5170	10.1300	.4775	<.9540
161....	14.0	13.0	<.0990	.1607	11.8400	16.6600	147.7000	1.8040	9.7580	<.4950	1.2830
162....	15.0	13.0	<.0980	.1565	8.8060	9.3570	175.9000	1.2460	13.3200	<.4900	<.9800
163....	16.0	13.0	<.0960	.2394	15.7600	16.9800	230.8000	1.8610	10.1500	0.5047	<.9630
164....	17.0	13.0	<.0980	.1732	11.9900	15.4600	125.2000	1.1010	6.7110	<.4910	<.9820
165....	18.0	13.0	<.0980	.1023	11.3200	15.9000	209.6000	<.4940	<.9880	<.4940	<.9880
166....	19.0	13.0	<.0970	.4707	7.0070	10.7300	50.4100	2.1020	26.2700	<.4870	1.0780
167....	20.0	13.0	<.0970	.2776	13.530	15.9700	119.1000	.6047	7.1790	<.4890	1.4090
168....	0.0	12.0	<.0970	.3558	7.0960	10.7900	263.7000	1.9520	30.0000	<.4850	1.8940
169....	1.0	12.0	<.0950	.9204	7.8190	18.9300	139.7000	1.2840	22.3100	<.4780	2.0270
170....	2.0	12.0	<.0940	1.9630	10.7900	16.9000	188.5000	1.3250	22.7800	<.4740	2.1390
171....	3.0	12.0	<.0980	2.0850	10.1600	19.2200	173.8000	1.9160	28.2700	<.4920	2.1200
172....	4.0	12.0	<.0950	.6469	8.3670	20.4900	112.8000	1.7760	53.9300	<.4770	2.8670
173....	5.0	12.0	<.0960	1.2540	8.7590	13.2200	131.8000	2.6460	61.9900	<.4830	2.6150
174....	6.0	12.0	<.0960	1.2600	8.5890	26.5400	162.9000	.9756	19.9700	<.4800	<.9610
175....	7.0	12.0	<.0980	.6199	7.6660	47.7200	108.4000	1.2990	26.9000	<.4910	1.3160
176....	8.0	12.0	<.0950	.6780	9.1060	29.5600	105.9000	2.0650	84.4200	.5893	1.9100
177....	9.0	12.0	<.0970	.4908	9.7980	12.8300	91.1100	1.3170	23.6100	<.4870	1.7390
178....	10.0	12.0	<.0970	.4776	11.3300	13.7300	123.0000	1.9020	17.4100	<.4860	<.9720
179....	11.0	12.0	.2229	.6793	12.7000	17.3600	152.1000	5.2560	32.2400	.7754	2.1380
180....	12.0	12.0	<.0970	.4079	12.3400	17.5500	162.3000	.5572	6.4070	.7631	1.2480
181....	13.0	12.0	<.0970	.5176	16.6800	20.9800	65.7900	1.6740	21.5100	.6758	1.4030
182....	14.0	12.0	<.0980	.1543	8.9050	13.9100	93.4700	1.2740	5.5720	1.0810	<.9840
183....	15.0	12.0	<.0980	.1412	10.7600	16.7700	113.2000	2.2810	3.1050	1.2740	1.1220
184....	16.0	12.0	<.1000	.2748	13.6000	17.4300	151.4000	.6353	7.9710	.6157	<1.0000

TABLE A-3. - Analyses from soil sample grid, Bold Ruler prospect--Con.

No.	Coordinates X	Coordinates Y	Au	Ag	Cu	Pb	Zn	Mo	As	Hg	Sb
185....	17.0	12.0	<0.0970	0.2944	14.6500	17.2500	204.3000	0.8858	10.1400	0.5967	1.4070
186....	18.0	12.0	<.0990	.1377	12.0500	17.1900	135.2000	<.4990	7.8700	.5209	<.9980
187....	19.0	12.0	<.0940	.2527	12.6700	19.5000	147.6000	1.5300	16.6300	.6780	1.3120
188....	20.0	12.0	<.0980	.2215	12.5700	20.8300	105.0000	1.6480	9.0880	.8383	<.9860
189....	0.0	11.0	.5271	1.0140	9.6100	20.3000	127.0000	4.7150	55.7300	1.3390	6.1040
190....	1.0	11.0	.1304	.8348	9.2050	16.4900	126.3000	2.3720	35.0400	.5465	3.7830
191....	2.0	11.0	<.0950	1.0030	11.2800	14.7300	220.3000	2.1540	28.3600	<.4770	2.4570
192....	3.0	11.0	<.0950	1.0200	9.1250	15.4700	210.8000	1.4810	20.6600	.7464	2.5020
193....	4.0	11.0	.1479	1.8980	10.5300	16.5600	159.1000	1.1600	35.4200	.9557	3.5120
194....	5.0	11.0	<.0980	1.2550	10.2800	13.1100	182.8000	2.2230	84.0500	.9046	3.9890
195....	6.0	11.0	<.0990	.5738	9.4950	9.4450	124.7000	1.9240	29.9700	<.4970	2.2930
196....	7.0	11.0	<.0950	.3856	9.1880	41.0000	114.0000	2.0030	44.8100	<.4780	2.0630
197....	8.0	11.0	<.0960	.6591	7.2880	16.6600	110.1000	2.2810	78.1800	<.4840	3.2880
198....	9.0	11.0	<.0950	1.1330	11.7700	13.5700	140.3000	2.1330	23.6900	<.4790	2.4120
199....	10.0	11.0	<.0960	.6171	9.3320	22.6800	141.0000	1.2860	14.4600	<.4800	1.8270
200....	11.0	11.0	.1513	.4893	9.6330	15.5300	85.9500	2.5860	70.8600	1.3870	6.6770
201....	12.0	11.0	<.0980	.3687	10.7800	18.0700	88.5300	1.1920	16.3500	1.1060	2.0470
202....	13.0	11.0	<.0990	.6588	12.5700	21.7500	87.5300	1.3860	35.4000	1.0890	1.2550
203....	14.0	11.0	<.1000	.1674	116.8000	15.2700	78.5500	22.2700	7.5990	.8421	<1.0000
204....	15.0	11.0	<.0980	.2972	12.0900	18.8100	138.3000	1.3540	9.3020	1.0340	1.3290
205....	16.0	11.0	<.0970	.3640	15.7200	19.4500	137.4000	1.5970	6.8580	2.0360	1.6270
206....	17.0	11.0	<.0980	.2880	14.0400	17.5300	142.6000	1.5880	4.7060	1.8460	1.1330
207....	18.0	11.0	<.0980	.2182	12.2400	18.7100	204.6000	.8777	4.7040	.6780	1.1510
208....	19.0	11.0	<.0980	.4216	11.4800	18.5400	78.1200	1.8950	9.3650	.6563	<.9820
209....	20.0	11.0	<.0980	.2894	8.9760	12.1600	122.4000	1.3180	8.5990	.6808	<.9880
210....	0.0	10.0	<.0960	.3302	10.0000	17.9700	104.9000	4.6090	63.4000	.5369	6.6970
211....	1.0	10.0	.1146	.4671	7.0550	17.4800	85.4300	3.5640	85.2400	.9715	9.6590
212....	2.0	10.0	<.0960	1.0460	6.3730	16.8100	86.2200	2.1400	59.2900	.8035	4.8720
213....	3.0	10.0	.1541	1.0080	10.9600	15.9300	159.3000	2.0200	29.2200	.7076	1.8223
214....	4.0	10.0	.1822	1.0060	7.6220	15.6800	91.5000	1.9400	35.2500	.7876	3.3480
215....	5.0	10.0	<.0950	1.0580	10.4100	14.2100	192.9000	1.1360	28.0100	.5708	2.4480

TABLE A-3. - Analyses from soil sample grid, Bold Ruler prospect--Con.

No.	Coordinates X	Coordinates Y	Au	Ag	Cu	Pb	Zn	Mo	As	Hg	Sb
216....	6.0	10.0	0.1865	1.1120	9.3620	13.0400	207.5000	1.4920	22.4600	<0.4850	1.3370
217....	7.0	10.0	<.0960	.6841	9.7560	12.7600	163.2000	1.9140	24.8400	.7148	1.7540
218....	8.0	10.0	<.0960	.8102	9.7250	12.7000	197.0000	2.8380	39.0900	<.4820	1.2360
219....	9.0	10.0	<.0960	.9344	12.8500	21.2700	150.5000	1.4950	20.3900	.8237	1.1180
220....	10.0	10.0	1.6820	1.8850	9.4670	17.2900	146.000	2.5210	58.0100	1.1740	4.5000
221....	11.0	10.0	.1068	.3414	9.4720	15.8100	117.4000	5.2740	59.5800	1.2070	4.9030
222....	12.0	10.0	<.0970	.1597	7.8790	12.9000	102.4000	1.0070	12.6300	.7611	1.6010
223....	13.0	10.0	<.0950	.2351	7.8550	14.1700	61.8600	1.3830	29.4700	<.4790	1.6880
224....	14.0	10.0	<.0960	.0796	7.9420	13.6000	84.6900	1.2030	16.5700	<.4840	1.6740
225....	15.0	10.0	<.0960	.4903	8.3830	11.0500	69.6600	0.8715	14.4300	<.4820	<.9650
226....	16.0	10.0	<.0970	.1207	9.0450	12.6800	88.6300	1.4760	10.7800	.4926	1.0470
227....	17.0	10.0	<.0960	.2775	14.1800	12.5600	129.2000	1.5590	6.7450	.6669	<.9610
228....	18.0	10.0	<.0980	.2972	12.9900	20.8900	226.0000	1.0280	7.1100	<.4920	1.2020
229....	19.0	10.0	<.0970	.6454	9.5850	12.5000	90.2300	1.5400	6.9810	<.4860	<.9720
230....	20.0	10.0	<.0950	.3917	10.1500	12.1100	118.3000	2.2990	13.4500	<.4780	1.4460
231....	0.0	9.0	<.0980	.2247	11.1400	20.7400	136.1000	5.1920	70.5600	.9475	7.9760
232....	1.0	9.0	<.0990	.5433	9.0140	19.0100	142.0000	4.7310	63.9300	.6530	7.5280
233....	2.0	9.0	.4566	1.6160	7.8650	18.9900	96.4900	2.5650	66.3600	1.0110	6.9600
234....	3.0	9.0	<.0990	1.2320	9.4280	15.9300	98.1300	1.8650	43.5600	<.4960	3.6920
235....	4.0	9.0	<.0950	4.6190	8.3890	16.1100	142.2000	1.5490	29.0800	.7688	3.9550
236....	5.0	9.0	.1585	1.5440	12.3000	13.7000	151.8000	1.5130	25.8000	.7444	1.8750
237....	6.0	9.0	<.0970	.7599	9.7840	13.1300	144.2000	1.4420	28.6200	.8975	1.9040
238....	7.0	9.0	<.0980	.6663	8.8430	15.0800	132.2000	8.3370	68.2200	.7281	4.1140
239....	7.5	9.0	<.0950	1.8410	10.2100	14.400	181.5000	7.7120	35.6700	.5546	1.0940
240....	8.0	9.0	<.0970	.7926	10.7100	13.1300	233.4000	2.7210	28.3700	.5683	1.2630
241....	8.5	9.0	.2668	1.5530	14.3600	20.2000	203.4000	2.6830	29.9300	.8193	1.8050
242....	9.0	9.0	.1872	.8385	11.8400	14.7800	154.4000	1.5000	27.6200	.8731	2.0220
243....	9.5	9.0	<.0980	.9791	10.4000	16.7900	130.7000	1.0070	28.7800	.5772	1.6000
244....	10.0	9.0	.6749	1.6090	8.5410	12.7800	128.7000	1.0400	15.8100	.7404	1.3490
245....	10.5	9.0	.2060	.6093	9.4850	14.3200	117.5000	9.0050	73.6300	1.3570	5.4420
246....	11.0	9.0	4.9830	6.5130	6.4890	13.9500	92.6600	22.3500	91.8000	1.0520	6.3060

TABLE A-3. - Analyses from soil sample grid, Bold Ruler prospect--Con.

No.	Coordinates X	Coordinates Y	Au	Ag	Cu	Pb	Zn	Mo	As	Hg	Sb
247....	11.5	9.0	<0.0960	0.2315	12.5500	19.8600	118.4000	2.2200	15.6900	0.6714	1.7940
248....	12.0	9.0	<.0960	.3105	8.4250	13.7100	105.6000	1.3810	8.1710	<.4820	<.9650
249....	12.5	9.0	<.0970	.2189	6.9370	14.3400	60.6100	1.2390	38.6800	<.4860	<.9720
250....	13.0	9.0	<.0970	.2393	5.1470	10.6400	39.9300	<.4860	30.4800	.8549	<.9720
251....	14.0	9.0	<.0980	.2306	6.5720	10.7400	60.3100	.6857	8.0960	<.4900	<.9800
252....	15.0	9.0	<.0970	.4743	7.1220	10.9000	67.0900	1.0950	11.7100	<.4850	<.9700
253....	16.0	9.0	<.0970	.4569	7.6770	12.2000	110.3000	1.2560	16.5800	<.4860	<.9720
254....	17.0	9.0	<.0950	.5251	7.9410	11.1300	109.3000	1.5770	15.1700	<.4770	<.9540
255....	18.0	9.0	<.0990	.6440	10.6200	13.4600	120.3000	1.7330	10.8900	.6124	<.9900
256....	19.0	9.0	<.0960	.7203	7.9450	12.1500	100.8000	1.5080	7.7980	<.4830	<.9670
257....	20.0	9.0	<.0970	1.5590	10.5900	12.0600	139.1000	3.7970	18.0400	<.4870	.9962
258....	0.0	8.0	<.0980	.2451	7.1780	13.6000	114.4000	1.4170	29.6400	1.0620	3.8550
259....	1.0	8.0	<.0950	.5054	10.2200	16.3700	118.7000	1.6810	30.3200	.6999	3.4120
260....	2.0	8.0	<.0960	.2901	7.1190	15.9400	118.9000	2.1570	40.4600	.6456	5.0160
261....	3.0	8.0	<.0960	.6905	8.1460	17.6500	76.3900	.6343	37.9700	.4818	3.7220
262....	4.0	8.0	.3654	2.6480	9.9430	13.7000	148.7000	1.2250	31.0100	.5402	1.7910
263....	5.0	8.0	<.0970	1.5690	10.8200	18.7700	142.5000	1.7470	56.2100	.7610	3.9140
264....	5.5	8.0	<.0970	.8493	9.3210	15.4600	104.2000	1.6030	84.7200	1.3110	5.9830
265....	6.0	8.0	<.0990	1.1740	8.9190	14.7300	140.5000	1.1990	38.3100	.5537	1.8870
266....	6.5	8.0	.3391	2.4860	12.5100	15.2900	120.9000	10.8300	36.7300	1.1390	2.5570
267....	7.0	8.0	.2890	.8347	8.2860	15.5800	101.6000	2.3190	43.9800	.6184	3.0970
268....	7.5	8.0	<.0980	.7564	10.9400	13.7000	100.4000	1.4830	26.5700	1.5510	1.7140
269....	8.0	8.0	.2176	2.1940	11.5600	18.2000	110.2000	6.4570	54.2000	.7742	2.2950
270....	8.5	8.0	<.0980	.9558	7.5480	15.5500	78.9000	4.1080	69.6500	1.0430	6.2920
271....	9.0	8.0	<.0980	1.0480	9.9290	12.4800	121.2000	.9231	19.5100	.5463	<.9840
272....	9.5	8.0	<.0980	1.0660	12.1700	17.4800	164.6000	1.9440	30.7200	<.4920	2.6940
273....	10.0	8.0	.5630	.8738	6.4720	17.2300	180.5000	4.1460	56.2600	1.0110	4.6950
274....	10.5	8.0	.1992	.4544	9.2370	13.5000	133.6000	1.0760	25.9500	<.4810	1.4420
275....	11.0	8.0	5.1070	7.0010	8.2990	14.2100	92.4800	20.8500	93.2400	<.4830	5.9490
276....	11.5	8.0	<.0980	.5634	9.1230	15.0300	103.1000	.8241	16.7200	<.4920	1.4050
277....	12.0	8.0	<.0950	.3882	6.1450	13.3400	103.6000	1.1900	11.6700	<.4780	<.9570

TABLE A-3. - Analyses from soil sample grid, Bold Ruler prospect--Con.

No.	Coordinates X	Coordinates Y	Au	Ag	Cu	Pb	Zn	Mo	As	Hg	Sb
278....	12.5	8.0	<0.0960	0.3025	7.8630	12.5400	86.0300	0.9226	10.5300	<0.4820	<0.9650
279....	13.0	8.0	<.0990	.3327	4.3700	9.8240	84.7400	1.0590	10.4600	<.4950	<.9900
280....	14.0	8.0	<.0970	.1776	5.1280	10.2600	64.8500	1.4100	8.2970	<.4860	<.9720
281....	15.0	8.0	<.0960	.4787	6.4650	9.9150	65.4400	1.9310	29.8800	<.4840	<.9680
282....	16.0	8.0	<.0950	.4109	5.6770	10.9800	79.2000	2.7820	18.7200	<.4790	<.9590
283....	17.0	8.0	<.0970	.3353	7.0770	11.6900	89.3000	3.5120	19.9800	.5289	1.6540
284....	18.0	8.0	<.0970	.3147	6.2730	11.6800	83.4700	4.2050	20.3700	<.4870	1.3950
285....	19.0	8.0	<.0990	.7264	7.4940	15.1700	95.6100	8.0460	34.7400	.5428	2.0140
286....	20.0	8.0	<.0950	1.0340	8.0530	15.9900	105.7000	18.4500	73.4600	<.4780	3.3840
287....	0.0	7.0	<.0990	.5108	9.5350	13.8200	116.1000	1.1170	25.4500	.9167	3.2640
288....	1.0	7.0	<.0970	.2777	7.7240	14.1600	88.5300	1.5570	43.9900	.7464	5.1550
289....	2.0	7.0	<.0960	.3929	7.3180	11.0400	80.4900	<.4800	22.4600	.8492	2.7570
290....	3.0	7.0	.2449	.9488	8.3820	11.0200	107.1000	.8533	26.5900	.6903	3.2730
291....	4.0	7.0	<.0960	.5344	7.6580	12.7000	120.4000	.9033	51.0600	.8539	3.3220
292....	5.0	7.0	<.0960	1.8050	13.2500	10.9700	144.9000	<.4840	26.8600	<.4840	<.9680
293....	6.0	7.0	1.1480	1.8660	7.7570	13.0200	98.3200	2.3450	108.8000	.7914	8.7570
294....	7.0	7.0	<.0980	1.8180	9.7980	11.7500	107.9000	1.0850	28.7200	.6754	1.0400
295....	7.5	7.0	<.0960	1.0370	13.1800	15.3700	138.4000	<.4830	32.3100	.6271	1.4610
296....	8.0	7.0	<.0990	1.0200	11.0900	12.6700	105.7000	.8229	23.6700	.7670	<.9960
297....	8.5	7.0	<.0970	1.4780	14.9100	16.1800	116.9000	1.1110	34.5900	.8657	1.7020
298....	9.0	7.0	.1586	.5730	8.5440	13.1000	100.7000	1.4450	50.7500	.8471	3.0320
299....	9.5	7.0	<.0990	.7000	10.8000	15.3800	139.4000	1.4820	21.8200	.9303	1.0910
300....	10.0	7.0	2.8270	3.9340	10.0700	15.8800	102.5000	5.5040	44.3000	1.0900	3.5760
301....	10.5	7.0	<.0980	.3668	10.8300	22.0300	142.3000	.5118	16.6800	1.7720	1.1150
302....	11.0	7.0	<.0970	.4776	9.5530	12.8600	95.5700	1.1730	16.7500	<.4850	1.0870
303....	11.5	7.0	<.0980	.2364	7.6020	16.5700	70.5200	1.4050	12.7900	.7175	1.7870
304....	12.0	7.0	<.0950	.2724	7.8100	13.3500	78.2600	.6532	10.3600	<.4780	<.9570
305....	12.5	7.0	<.0990	.1650	7.1700	11.8700	79.3400	<.4950	11.5400	1.0830	<.9900
306....	13.0	7.0	<.0980	.8411	6.1720	8.0370	58.7000	.8758	37.6500	<.4920	<.9840
307....	14.0	7.0	<.0980	.2813	8.6970	9.9740	85.6600	<.4910	8.4280	<.4910	<.9820
308....	15.0	7.0	<.0960	.3299	5.4970	10.4000	75.9000	1.2120	38.7300	<.4830	<.9670

TABLE A-3. - Analyses from soil sample grid, Bold Ruler prospect--Con.

No.	Coordinates X	Coordinates Y	Au	Ag	Cu	Pb	Zn	Mo	As	Hg	Sb
309....	16.0	7.0	<0.0960	0.3972	9.2110	11.3900	91.5700	0.8412	10.0400	<0.4810	<0.9630
310....	17.0	7.0	.1067	1.0520	8.1620	13.1300	101.3000	6.5630	28.9300	<.4870	1.4830
311....	18.0	7.0	<.0960	.9406	9.2880	15.0100	82.2100	17.7000	66.0800	.5452	4.1330
312....	19.0	7.0	.6132	1.3360	10.6100	23.7900	91.3200	17.1200	77.8200	.7604	4.8470
313....	20.0	7.0	.3094	1.1640	9.2500	16.7900	121.8000	7.0670	42.8800	<.4910	2.7380
314....	0.0	6.0	<.0970	.3235	5.9450	9.1930	70.9600	<.4880	10.6800	.6280	1.5700
315....	1.0	6.0	<.0950	.6098	10.5900	14.2200	103.6000	.8133	28.4400	.8861	3.4560
316....	2.0	6.0	.1253	.9237	7.4230	10.8000	80.7900	.9725	55.6600	.7714	7.5460
317....	3.0	6.0	<.0970	.2665	5.9370	10.0900	87.0600	.9617	36.6300	.7541	3.4880
318....	4.0	6.0	<.0970	.2186	7.9620	9.2210	150.4000	.8117	33.7800	.8618	2.8020
319....	5.0	6.0	<.0980	.4755	8.5420	10.6100	106.8000	.8496	50.1300	.8535	2.9430
320....	6.0	6.0	<.0990	.6897	11.8200	15.3600	137.0000	1.0430	36.0200	.8396	1.5880
321....	7.0	6.0	<.0980	.6121	9.4370	11.8300	155.4000	<.4910	23.4200	.6161	<.9820
322....	7.5	6.0	<.0960	.8473	10.6500	12.8000	131.8000	.9312	15.8600	.9366	<.9610
323....	8.0	6.0	<.0980	.6449	9.2040	11.0600	96.6600	1.2280	26.4200	.8674	1.3520
324....	8.5	6.0	<.0980	.8084	8.7760	13.2500	107.6000	.8165	15.3700	1.3170	1.0360
325....	9.0	6.0	<.0960	.3464	9.2540	12.3200	95.9400	1.0200	19.8600	.8516	1.3230
326....	9.5	6.0	<.0990	.2938	14.1600	16.6500	116.9000	.5607	20.4600	1.2530	1.5700
327....	10.0	6.0	<.0970	.2725	7.1420	13.0400	76.4700	1.0120	14.7700	.9776	1.3740
328....	10.5	6.0	<.0950	.4791	9.9240	17.6200	104.8000	2.2480	18.4800	.7830	<.9590
329....	11.0	6.0	<.0950	.4779	9.3650	13.8400	85.2100	2.2370	19.2700	.7893	1.4720
330....	11.5	6.0	<.0990	.5999	8.9910	17.7400	112.3000	1.8550	17.4300	1.0410	1.3230
331....	12.0	6.0	<.0940	.3719	9.4980	12.3200	140.9000	.7060	18.9700	<.4720	<.9450
332....	12.5	6.0	<.0950	.2090	8.4210	15.1300	132.8000	.4881	20.5500	.7057	<.9570
333....	13.0	6.0	<.0960	.4702	5.2420	10.2100	64.6700	.7202	22.8300	<.4820	<.9650
334....	14.0	6.0	<.0960	.1752	5.6440	9.1060	56.8500	1.3100	15.3100	<.4810	<.9630
335....	15.0	6.0	<.0970	.7378	7.3120	10.8400	76.5200	3.0240	31.5700	<.4890	1.7130
336....	16.0	6.0	<.0970	.2106	6.0400	10.4400	60.6700	.5327	11.9600	<.4870	<.9740
337....	17.0	6.0	<.0980	.2301	7.3800	11.6100	88.8200	.7266	19.1000	<.4930	1.2520
338....	18.0	6.0	<.0980	1.2630	8.5050	18.9700	81.0600	24.7300	45.9100	<.4940	3.0630
339....	19.0	6.0	<.0970	.4660	8.8770	12.8600	85.5200	8.0590	54.1600	.7363	3.4190

TABLE A-3. - Analyses from soil sample grid, Bold Ruler prospect--Con.

No.	Coordinates X	Coordinates Y	Au	Ag	Cu	Pb	Zn	Mo	As	Hg	Sb
340....	20.0	6.0	<0.0960	1.0790	12.5300	12.1700	148.9000	1.5090	25.5600	<0.4840	<0.9680
341....	0.0	5.0	<.0970	.1439	8.3410	11.1900	78.8500	1.0530	20.3200	<.4870	2.4870
342....	1.0	5.0	<.0980	.1801	8.4030	10.0600	83.5000	.6814	23.2700	<.4900	3.0380
343....	2.0	5.0	<.0960	.3574	5.6980	9.5750	78.2700	.9779	35.7800	<.4830	4.7460
344....	3.0	5.0	.1183	.3199	5.8000	8.1970	73.2000	1.4690	57.9700	<.4910	4.8110
345....	4.0	5.0	<.0950	.3350	6.5500	9.4230	84.8700	1.4910	23.7000	<.4750	3.0780
346....	5.0	5.0	<.0950	.7991	7.8710	8.8170	102.7000	1.6220	19.0100	<.4790	1.2320
347....	6.0	5.0	<.0970	.4788	10.0800	12.4000	118.6000	1.7740	20.4000	<.4850	1.4410
348....	7.0	5.0	<.0970	.4648	10.7700	11.8900	141.9000	1.3330	13.7000	<.4860	1.0030
349....	7.5	5.0	<.0970	1.0410	10.3700	12.4200	105.6000	1.4020	28.6600	<.4870	1.0608
350....	8.0	5.0	<.0970	1.0168	10.5700	11.7800	94.5400	.5288	15.6800	.6983	<.9700
351....	8.5	5.0	<.0970	.6186	10.1100	13.7300	92.6100	1.5730	29.6600	.8621	1.9540
352....	9.0	5.0	<.0970	.2350	10.4400	13.4100	93.3600	.9307	15.5600	.6980	<.9700
353....	9.5	5.0	<.0970	.3271	12.2100	14.1800	98.4500	2.2190	28.1200	.7060	2.6710
354....	10.0	5.0	<.0980	.3341	8.7310	11.1500	90.7400	1.0660	16.6300	<.4910	<.9820
355....	10.5	5.0	<.0960	.7052	12.6500	15.9800	98.1500	2.0530	20.6200	.5988	1.7430
356....	11.0	5.0	<.0980	.3709	6.6220	11.7000	71.6400	1.4940	14.4500	<.4920	<.9840
357....	11.5	5.0	.5808	.9168	6.7760	27.6400	46.1400	6.8070	34.9000	.7426	1.9190
358....	12.0	5.0	<.0950	.3070	8.6980	13.7200	135.0000	.5179	12.1200	<.4790	1.0300
359....	12.5	5.0	<.0960	.2929	6.9850	11.9500	93.8100	.7583	13.5400	.7300	<.9680
360....	13.0	5.0	<.0970	.7818	6.3900	10.1000	81.2500	.8975	15.7200	<.4870	<.9740
361....	14.0	5.0	<.0960	.3804	8.7060	10.6100	80.5900	.7986	27.9600	<.4830	<.9670
362....	15.0	5.0	<.0970	.3975	8.3350	11.8100	85.2000	.7206	10.5600	<.4870	<.9740
363....	16.0	5.0	<.0970	.2818	4.3300	9.3200	48.1100	<.4890	7.8980	<.8812	<.9780
364....	17.0	5.0	<.0970	.4548	9.4380	11.8900	85.7700	1.5820	26.5400	<.4870	1.2790
365....	18.0	5.0	<.0970	.1192	4.2190	5.7950	27.0400	1.9600	20.4700	<.4740	1.5440
366....	19.0	5.0	<.0970	.5076	10.2300	12.8400	132.7000	2.0940	33.1600	<.4860	1.3940
367....	20.0	5.0	<.0950	.8251	13.4800	15.2300	143.5000	1.3510	39.4800	.4800	1.3760
368....	0.0	4.0	<.0970	.0565	6.7010	11.3500	85.3700	<.4870	25.3100	<.4870	3.3120
369....	1.0	4.0	<.0970	.1133	6.2030	10.9800	64.8600	.7839	26.4000	<.4850	2.9160
370....	2.0	4.0	.2054	.4081	7.0520	10.8400	76.2500	1.0550	34.0300	<.4950	2.5790

TABLE A-3. - Analyses from soil sample grid, Bold Ruler prospect--Con.

No.	Coordinates X	Coordinates Y	Au	Ag	Cu	Pb	Zn	Mo	As	Hg	Sb
371....	3.0	4.0	0.1316	0.2544	6.4790	9.1750	67.7900	0.9958	26.0700	<0.4820	2.0070
372....	4.0	4.0	<.0980	.1631	5.8860	10.9600	67.6600	.6907	17.5000	<.4900	1.5970
373....	5.0	4.9	<.0970	1.3840	7.9360	10.3100	92.9800	.8454	12.1800	<.4880	1.0280
374....	6.0	4.0	<.0980	.5331	9.6030	12.8100	92.6200	.9369	19.7800	<.4910	1.4810
375....	7.0	4.0	<.0970	.3444	11.5200	13.0700	132.1000	1.4110	17.2700	<.4860	1.4810
376....	7.5	4.0	<.0960	.9627	12.1200	12.5700	105.1000	.9304	11.5400	.8521	<.9610
377....	8.0	4.0	<.0970	.7137	9.6530	12.5200	89.6100	1.4130	14.7700	<.4850	1.3590
378....	8.5	4.0	<.0970	.3950	14.8800	14.6300	143.6000	.6713	11.9100	.9293	<.9740
379....	9.0	4.0	<.0960	.1500	9.9750	11.8600	95.3000	1.5880	15.8900	<.4800	1.4140
380....	9.5	4.0	<.0990	.2753	11.9300	12.4200	101.4000	1.2860	16.2500	1.2150	<.9940
381....	10.0	4.0	<.0950	.2318	9.0640	13.1700	82.9600	1.0550	19.2200	<.4770	1.5790
382....	10.5	4.0	<.0970	.4783	10.1700	15.4300	89.3700	1.0700	19.1400	.6431	1.2320
383....	11.0	4.0	<.0990	.4352	11.2600	16.0000	93.8400	1.0250	19.2100	.8108	1.5790
384....	11.5	4.0	<.0980	.6082	12.8300	15.5900	111.3000	1.0250	13.0000	.6824	<.9800
385....	12.0	4.0	<.0970	.4366	11.3900	14.4300	104.7000	1.5640	14.7700	<.4880	1.1420
386....	12.5	4.0	<.0950	.2668	8.4380	13.6600	74.8700	1.4720	25.1300	1.1650	1.3420
387....	13.0	4.0	<.0970	.1547	8.3810	11.4700	91.3500	.9461	13.7200	<.4890	<.9780
388....	14.0	4.0	<.0970	.1962	11.5500	12.9600	100.2000	1.2360	26.1800	.5992	1.7860
389....	15.0	4.0	<.0970	.3546	8.4550	13.2000	82.0100	1.5770	13.3100	<.4880	1.0570
390....	16.0	4.0	<.0950	.2230	10.2000	13.9500	81.5400	1.1530	10.3200	.5239	<.9570
391....	17.0	4.0	<.0970	.1867	6.0910	10.2700	68.3800	.7111	9.0900	.8963	1.0720
392....	18.0	4.0	<.0950	.1374	4.1840	10.0800	50.0200	<.4790	14.4200	<.4790	1.0430
393....	19.0	4.0	<.0960	.6991	7.6620	9.0850	54.9700	<.4800	68.1900	<.4800	3.4160
394....	0.0	3.0	<.0980	.2610	10.5100	11.9200	81.8700	.5726	29.9800	<.4910	3.4650
395....	1.0	3.0	<.0980	.3108	4.7770	11.2700	68.8100	.7097	27.6300	<.4940	2.4830
396....	2.0	3.0	<.0950	.3416	8.4100	11.1400	79.6500	1.3930	15.6500	<.4790	1.5970
397....	3.0	3.0	<.0970	.1860	6.2240	9.7760	65.9200	.5764	21.7600	<.4890	1.9850
398....	4.0	3.0	<.0970	.4240	7.4710	8.7370	63.4700	<.4850	17.9000	<.4850	1.3370
399....	5.0	3.0	<.0990	.7094	9.8040	9.7910	98.9600	.8075	13.1900	<.4960	1.5240
400....	6.0	3.0	<.0980	.2760	8.9000	11.5500	79.6400	1.2380	16.7700	<.4940	1.4370
401....	7.0	3.0	<.0950	.3752	9.6740	11.7500	108.5000	.9512	10.5000	<.4760	1.1370

TABLE A-3. - Analyses from soil sample grid, Bold Ruler prospect--Con.

No.	Coordinates		Au	Ag	Cu	Pb	Zn	Mo	As	Hg	Sb
	X	Y									
402....	8.0	3.0	<0.0980	0.4038	9.8360	11.1700	84.3000	0.8809	14.4900	<0.4930	1.3620
403....	8.5	3.0	<.0980	.2470	11.7100	14.0200	102.3000	1.4490	18.8500	.7311	1.3190
404....	9.0	3.0	<.0980	.2051	11.4500	13.1600	98.0800	1.0300	17.1100	<.4940	1.3660
405....	9.5	3.0	<.0980	.2857	10.6800	14.2300	98.0700	1.6690	19.2400	.8887	1.1580
406....	10.0	3.0	<.0940	.2417	9.8060	12.8800	80.2500	1.6630	25.2800	1.1200	1.7810
407....	10.5	3.0	<.0980	.3977	10.5200	14.3200	85.1000	.9481	16.9500	.9231	<.9800
408....	11.0	3.0	<.0950	.4717	11.0600	11.9500	104.5000	.8882	10.5200	<.4760	<.9520
409....	11.5	3.0	<.0960	.6595	8.0300	16.5600	73.6600	1.2250	21.1900	.7907	1.3530
410....	12.0	3.0	<.0970	.4196	9.2240	13.6100	76.8700	.9065	12.9500	.6092	<.9720
411....	12.5	3.0	<.0960	.2750	10.5200	13.8500	100.8000	.5414	10.2500	.4946	<.9650
412....	13.0	3.0	<.0940	.1366	7.9570	11.0800	89.8700	.7537	28.7000	.9158	1.3950
413....	14.0	3.0	<.0940	.0551	10.2000	12.7600	101.5000	1.1580	24.5700	.9358	1.9970
414....	15.0	3.0	<.0960	.1351	10.3600	14.1400	95.8900	.8639	8.8400	.9390	<.9630
415....	16.0	3.0	<.0960	.1993	10.9200	12.4200	66.8100	.7976	12.7700	.5842	<.9670
416....	17.0	3.0	<.0950	.0972	6.7890	13.2500	58.9100	.7226	6.3780	<.4790	<.9590
417....	18.0	3.0	<.0970	.4514	8.9280	12.6700	84.8900	1.0910	11.7100	.9169	<.9700
418....	19.0	3.0	<.0990	.8585	8.7540	14.3200	82.7600	1.4710	90.3800	.9779	3.6210
419....	0.0	2.0	<.0960	.1587	11.0800	13.4800	74.6100	.7883	11.6600	<.4780	1.3830
420....	1.0	2.0	<.0970	.1436	11.0200	12.2300	79.3600	.9671	25.5900	<.4890	2.2960
421....	2.0	2.0	<.0960	.2887	9.3360	12.1100	83.9500	1.720	39.8800	<.4830	3.1960
422....	3.0	2.0	<.0960	.1465	9.0650	12.3600	81.4600	2.8570	28.3800	<.4820	2.9090
423....	4.0	2.0	<.0940	.0685	5.3550	9.7240	58.2700	1.9070	20.4800	<.4740	2.3660
424....	5.0	2.0	<.0950	.3833	6.5230	10.4500	80.8300	2.0670	15.6700	<.4780	1.8230
425....	6.0	2.0	<.0980	.1894	9.0570	13.3600	75.4700	1.9960	15.7500	<.4900	1.6240
426....	7.0	2.0	<.0990	.3867	10.6600	11.6500	95.1700	1.8090	10.3600	<.4960	1.0360
427....	8.0	2.0	.1656	.3106	7.1500	12.5900	77.9200	3.1320	41.9900	<.4900	6.1270
428....	9.0	2.0	<.0980	.2038	10.7000	14.9400	93.6000	1.9900	25.2400	<.4920	1.8530
429....	10.0	2.0	<.0960	.1262	10.5100	14.7200	77.2900	1.8160	25.3800	.6779	1.8980
430....	11.0	2.0	.7028	.9144	8.1860	12.9500	84.7000	1.8410	32.3000	1.0050	2.0200
431....	12.0	2.0	<.0950	.2921	10.5900	16.9600	79.1300	1.2660	14.8300	<.4750	<.9500
432....	13.0	2.0	<.0980	.1306	8.1450	17.8600	68.8000	1.4550	39.1600	.5580	2.3300

TABLE A-3. - Analyses from soil sample grid, Bold Ruler prospect--Con.

No.	Coordinates X	Coordinates Y	Au	Ag	Cu	Pb	Zn	Mo	As	Hg	Sb
433....	14.0	2.0	<0.0970	0.1169	12.1100	14.3500	89.9700	1.7410	33.4000	0.7558	2.8570
434....	15.0	2.0	<.0940	.1480	7.7500	12.1000	74.9100	1.2970	10.2900	<.4740	<.9480
435....	16.0	2.0	<.0950	.2695	8.9950	20.4800	67.5200	1.3760	11.3900	.7302	<.9560
436....	17.0	2.0	<.0950	.2246	7.7880	12.3200	81.6000	.4860	30.0900	.7593	1.7470
437....	18.0	2.0	<.0970	.3797	9.8520	15.4300	84.1400	.8370	27.6600	<.4850	1.2310
438....	0.0	1.0	<.0980	.2797	9.7360	12.1700	57.9900	<.4910	6.6310	<.4910	1.5570
439....	1.1	1.0	<.0940	.3253	10.1600	11.1600	108.5000	1.0750	17.5500	<.4740	1.3910
440....	2.0	1.0	<.0990	.1050	8.9210	10.1900	72.0100	1.2440	7.5650	<.4950	<.9900
441....	3.0	1.0	<.0990	.1137	8.3070	10.5900	73.5600	.8974	11.7100	<.4970	1.5340
442....	4.0	1.0	<.0980	.1264	4.5720	8.1440	58.1300	.9221	12.2100	<.4930	1.3360
443....	5.0	1.0	<.0980	.2525	6.6760	11.4900	82.9600	1.3290	9.0920	<.4910	<.9820
444....	6.0	1.0	<.0960	.3062	11.6100	13.8800	119.2000	1.7420	11.7200	<.4820	<.9650
445....	7.0	1.0	.2831	.3072	10.3000	11.1600	60.3200	1.0920	24.8000	<.4760	2.5350
446....	8.0	1.0	<.0960	.1589	10.0000	15.2600	86.9500	2.1050	26.4100	<.4840	2.3310
447....	9.0	1.0	<.0950	.1160	12.7600	14.9200	93.2200	2.2700	21.5300	<.4760	1.7170
448....	10.0	1.0	<.0980	.1007	8.6900	15.3900	59.3500	2.1730	29.7300	.8581	2.3350
449....	11.0	1.0	<.0960	.4010	11.2700	17.9600	101.9000	1.7560	28.6900	<.4810	1.6650
450....	12.0	1.0	<.0960	.7415	11.7600	18.1100	107.8000	1.8600	40.2300	<.4800	2.5370
451....	13.0	1.0	<.0960	.4591	8.6000	15.9200	136.8000	1.1140	12.4700	<.4840	<.9680
452....	14.0	1.0	<.0960	.2749	11.3100	14.7700	117.9000	1.3940	21.5300	<.4810	<.9630
453....	15.0	1.0	<.0970	.2698	14.5700	16.6200	103.1000	.7556	9.4710	<.4880	<.9760
454....	16.0	1.0	<.0950	.1693	13.2200	19.3300	128.9000	.7595	8.6340	<.4770	<.9540
455....	17.0	1.0	<.0970	.2794	12.6400	19.2600	125.7000	.7657	11.0000	<.4880	<.9760
456....	18.0	1.0	<.0950	.6560	12.2300	17.8900	150.9000	.7727	12.1100	<.4780	<.9570
457....	19.0	1.0	<.0980	.2180	10.8200	17.8500	104.9000	1.9550	25.8800	<.4940	1.1960
458....	20.0	1.0	<.0990	.7715	11.6500	18.2300	141.8000	.5735	19.1100	<.4960	<.9920
459....	0.0	0.0	<.0980	.1141	10.6900	10.2000	80.0200	<.4920	2.7230	<.4920	<.9840
460....	1.0	0.0	<.0990	.0682	8.8950	10.8600	40.0500	.9058	3.6460	<.4950	1.9790
461....	2.0	0.0	.1942	.3619	9.3180	10.9000	58.0900	1.2270	11.2800	.5179	2.2550
462....	3.0	0.0	<.0980	.2724	13.0700	12.6200	81.8200	1.2790	9.7430	<.4910	1.5280
463....	4.0	0.0	<.0950	.1358	8.9100	11.6600	83.0500	1.4480	13.9500	<.4790	1.7970

TABLE A-3. - Analyses from soil sample grid, Bold Ruler prospect--Con.

No.	Coordinates X	Coordinates Y	Au	Ag	Cu	Pb	Zn	Mo	As	Hg	Sb
464....	5.0	0.0	<0.0970	0.2127	9.7380	14.2000	110.1000	1.2850	9.4700	1.4410	1.9140
465....	6.0	0.0	<.0990	.2388	15.5000	17.1100	120.9000	1.4870	12.8300	1.2290	1.5520
466....	7.0	0.0	<.0970	.3830	12.2200	14.3100	112.1000	1.8600	12.0000	1.7200	1.2670
467....	8.0	0.0	<.0990	.2591	13.1800	17.6100	119.4000	2.6850	22.7600	1.9030	2.0890
468....	9.0	0.0	<.0970	.1802	16.6600	16.5500	95.3100	1.9220	15.0700	1.3300	2.1240
469....	10.0	0.0	<.0960	.1076	13.5800	14.3900	103.4000	.6032	12.6300	<.4830	<.9670
470....	11.0	0.0	<.0970	.0800	11.4300	16.2200	83.9580	.9820	19.2100	<.4870	1.1670
471....	12.0	0.0	.1557	.5329	12.9100	25.3300	92.1200	2.4150	47.4400	.5077	3.3360
472....	13.0	0.0	<.0990	.7612	14.0000	21.5700	111.6000	1.2910	42.4500	<.4950	3.0180
473....	14.0	0.0	<.0980	.2809	12.7000	17.2400	113.4000	1.0960	19.6600	.7271	<.9880
474....	15.0	0.0	<.0960	.3501	10.4200	20.5000	124.0000	.9503	16.3200	<.4820	<.9650
475....	16.0	0.0	<.0960	.1708	11.2300	18.1600	99.1100	.5555	7.9850	<.4810	<.9630
476....	17.0	0.0	<.0980	.2436	15.2000	21.5700	145.9000	.9175	14.2200	<.4900	<.9800
477....	18.0	0.0	<.0960	.2775	10.4400	17.2500	93.7000	.9108	21.5700	1.5330	<.9610
478....	19.0	0.0	<.0960	.1682	9.1230	15.5200	72.4300	1.8650	18.4000	<.4820	.9929
479....	20.0	0.0	<.0950	.1262	9.7320	15.4400	79.8700	1.2530	11.8700	<.4770	<.9540

TABLE A-4. - Summary of soil placer samples from selected locations in the soil sample grid, Bold Ruler prospect

Coordinates		Sample weight[1]	Concentrate weight		Gold weight[2]	Description
			Magnetic	Non-magnetic		
x	y	(gm)	(gm)	(mg)	(mg)	
0	10	5.19	0	5.19	0	
2	10	4.42	0	4.42	0	
4	10	45.93	0	45.93	0.079	Gold extracted by amalgamation, VVVF, bright, subangular.
6	10	10.46	0	10.46	0	
8	10	2.31	0	2.31	.010	Gold extracted by amalgamation, VVVF, bright, very angular.
10	10	52.86	0	52.86	.472	Gold extracted by amalgamation, VVVF, bright, subangular.
12	10	2.75	0	2.75	0	
14	10	48.73	0	48.73	.019	Gold extracted by amalgamation, VVVF, bright, subangular.
16	10	47.39	0	47.39	.012	Gold extracted by amalgamation, VVVF, subangular.
18	10	28.66	0	28.66	.008	Gold extracted by amalgamation, VVVF, bright, subangular.
20	10	2.72	0	2.72	.006	Gold extracted by amalgamation, VVVF, bright, angular.
3	9	25.00	0	25.00	0	
4	9	29.24	0	29.24	.031	Gold extracted by amalgamation, VVVF, bright, subangular (duplicate sample).
4	9	19.09	0	19.09	0	
5	9	24.04	0	24.04	0	
6	9	40.09	0	40.09	0	
6	9	32.75	0	32.75	.009	Gold extracted by amalgamation, VVVF, bright, subangular (duplicate sample).
7	9	49.51	0	49.51	.026	Gold extracted by amalgamation, VVVF, bright, subangular.
8	9	22.30	0	22.30	0	

TABLE A-4. - Summary of soil placer samples from selected locations in the soil sample grid, Bold Ruler prospect--Con.

Coordinates		Sample weight[1] (gm)	Concentrate weight		Gold weight[2] (mg)	Description
			Magnetic (gm)	Non-magnetic (mg)		
x	y					
8	9	46.52	0	46.52	0.569	Gold extracted by amalgamation, VVVF, bright, subangular (duplicate sample).
9	9	25.94	0	25.94	.093	Gold extracted by amalgamation, VVVF, bright, subangular.
11	9	1.90	0	1.90	2.718	Gold extracted by amalgamation, VVVF, bright, flat to very angular.
13	9	2.67	0	2.67	0	
15	9	11.00	0	11.00	0	
17	9	10.79	0	10.79	0	
4	8	14.79	0	14.57	0	
6	8	3.62	0	3.62	.018	Gold extracted by amalgamation, VVVF, bright, subangular to subrounded.
8	8	16.12	0	16.12	.727	Gold extracted by amalgamation, VVVF, bright, angular to subangular.
10	8	23.08	0	23.08	.097	Gold extracted by amalgamation, VVVF, bright, subangular, to angular.
11	8	2.42	0	2.42	1.980	Gold extracted by amalgamation, VVVF, bright, angular.
13	8	33.54	0	33.54	0	
15	8	35.58	0	35.58	0	
17	8	25.18	0	25.18	.066	Gold extracted by amalgamation, VVVF, bright, flat.
11	7	41.33	0	41.33	.012	Do.
13	7	8.00	0	8.00	0	
15	7	6.65	0	6.65	0	
10	6	7.91	0	7.91	.051	Gold extracted by amalgamation, VVVF, bright, angular.
11	6	38.80	0	38.80	.014	Gold extracted by amalgamation, VVVF, bright, subangular.

TABLE A-4. - Summary of soil placer samples from selected locations in the soil sample grid, Bold Ruler prospect--Con.

Coordinates		Sample weight[1] (gm)	Concentrate weight		Gold weight[2] (mg)	Description
x	y		Magnetic (gm)	Non-magnetic (mg)		
11	5	24.62	0	24.62	0.008	Gold extracted by amalgamation, VVVF, bright, subangular.
10	4	40.89	0	40.89	.015	Do.
11	4	37.78	0	37.78	0	
11	3	65.72	0	65.72	0	
10	2	35.55	0	35.55	.098	Gold extracted by amalgamation, VVVF, bright, very angular.
10	0	21.47	0	21.47	.014	Gold extracted by amalgamation, VVVF, bright, subangular.

[1]All samples were screened to minus 1/4 in. and partially concentrated in the field.
[2]Only samples with visible gold under microscope were amalgamated and weighed.

APPENDIX B.--STATISTICAL PROCEDURES

Au - Because of the high detection limit of the analytical method used, over 80 pct of the samples contained gold levels below detection limit. A meaningful cumulative frequency curve could not be drawn, and therefore, the detection limit of 0.1 ppm was arbitrarily chosen as the threshold level (fig. B-1).

Ag - Only 4 pct of the samples contained below detection limit amounts of silver. From the resultant cumulative frequency curve, threshold values of 2.3 ppm were interpreted at the curve inflection point, and 1.8 ppm occurs at the curve intercept with the 2.5 pct frequency level (fig. B-2). Neither number compared well with threshold contours of other elements. The "best fit" was determined to be 0.6 ppm by comparison of lower limits of each of the three individual populations shown on the histogram (fig. B-2) with other elemental threshold contours; [mean + 2 (std. dev.)] is 1.7 ppm.

Cu - No copper analyses were below the detection limit, and the values were well distributed lognormally in one population. The threshold value of 16 ppm was chosen from the intercept of the curve with the 2.5 pct frequency level (fig. B-3). This compares well with the traditional threshold [mean + 2 (std. dev.)] of 22 ppm.

Pb - No lead analyses were below detection limit, and the values were distributed lognormally but in at least three populations. A threshold of 24 ppm was chosen from the 2.5 pct frequency intercept of the curve. The traditional threshold [mean + 2 (std. dev.)] is also 24.

Zn - No samples were below detection limit, but multiple populations are indicated by the histogram and cumulative frequency curve (fig. B-5). The threshold of 200 ppm at the 2.5 pct frequency intercept did not fit other element threshold contours well. Trial and error comparison of lower limits of the individual populations indicate the best comparison occurs at 138 ppm; [mean + 2 (std. dev.)] is 183 ppm.

Mo - Ten pct of the samples contained molybdenum values below detection limit, but the histogram and particularly the cumulative frequency curve still indicate a lognormal distribution over two distinct populations (fig. B-6). The threshold of 2.5 ppm at the curve inflection point was chosen which compares poorly with the traditional threshold [mean + 2 (std. dev.)] value of 7 ppm, but this is to be expected with very distinct populations.

Hg - Fifty-six pct of the samples contained mercury levels below the detection limits, and because of this, a cumulative frequency curve was not constructed. A threshold value of 0.8 ppm from the lower limit of a subtle population (fig. B-7) yielded a contour which compared well with the threshold contours of other elements.

As - Few samples contained arsenic levels below the detection limit, and the cumulative frequency curve as well as the histogram indicate two probable populations (fig. B-8). The midpoint of the dual population portion of the curve at 38 ppm is the threshold value. This is significantly higher than the traditional [mean + 2 (std. dev.)] threshold, but easily explainable because of the dual population.

Sb - Almost 40 pct of the samples contained values below the detection limit. Therefore, a cumulative frequency curve was not drawn. The lower limit of a possible distinct population on the histogram is 2.8 ppm (fig. B-9). A threshold contour at that level compared well with threshold contours of the other elements.

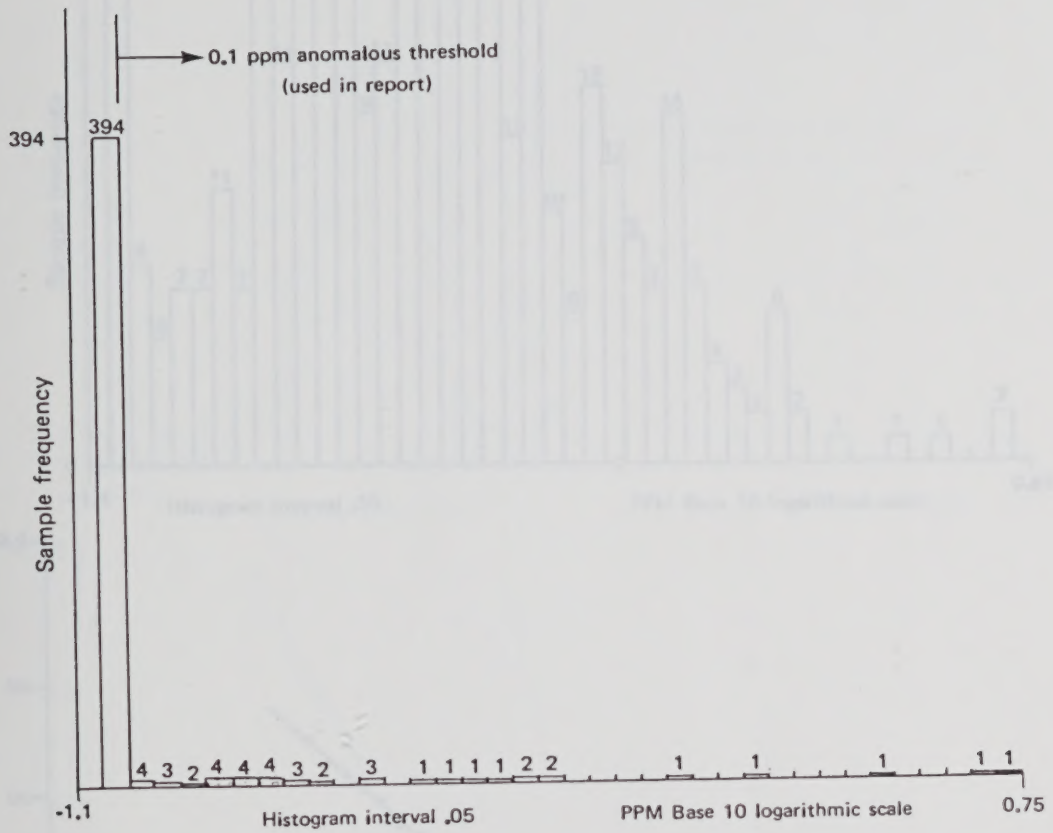
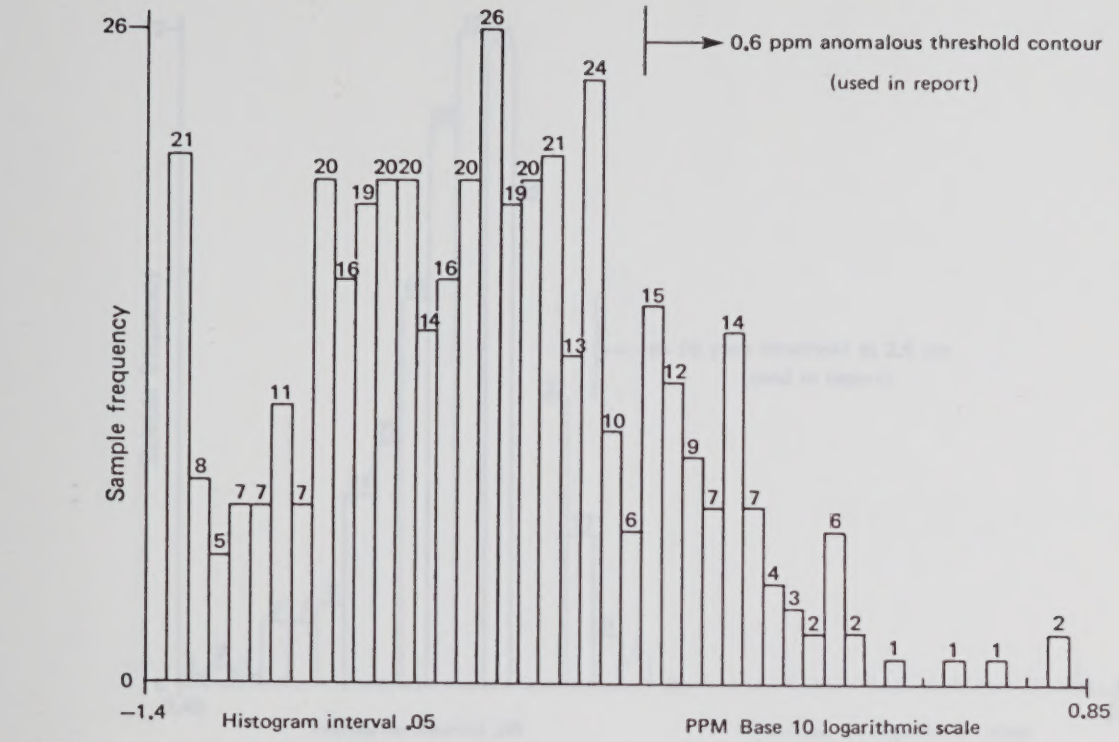

0.1 ppm anomalous threshold
(used in report)
394
394
Sample frequency
4 3 2 4 4 4 3 2 3 1 1 1 1 2 2 1 1 1 1 1
-1.1
Histogram interval .05
PPM Base 10 logarithmic scale
0.75

FIGURE B-1.– Histogram for gold values from the soil sample grid, Bold Ruler prospect



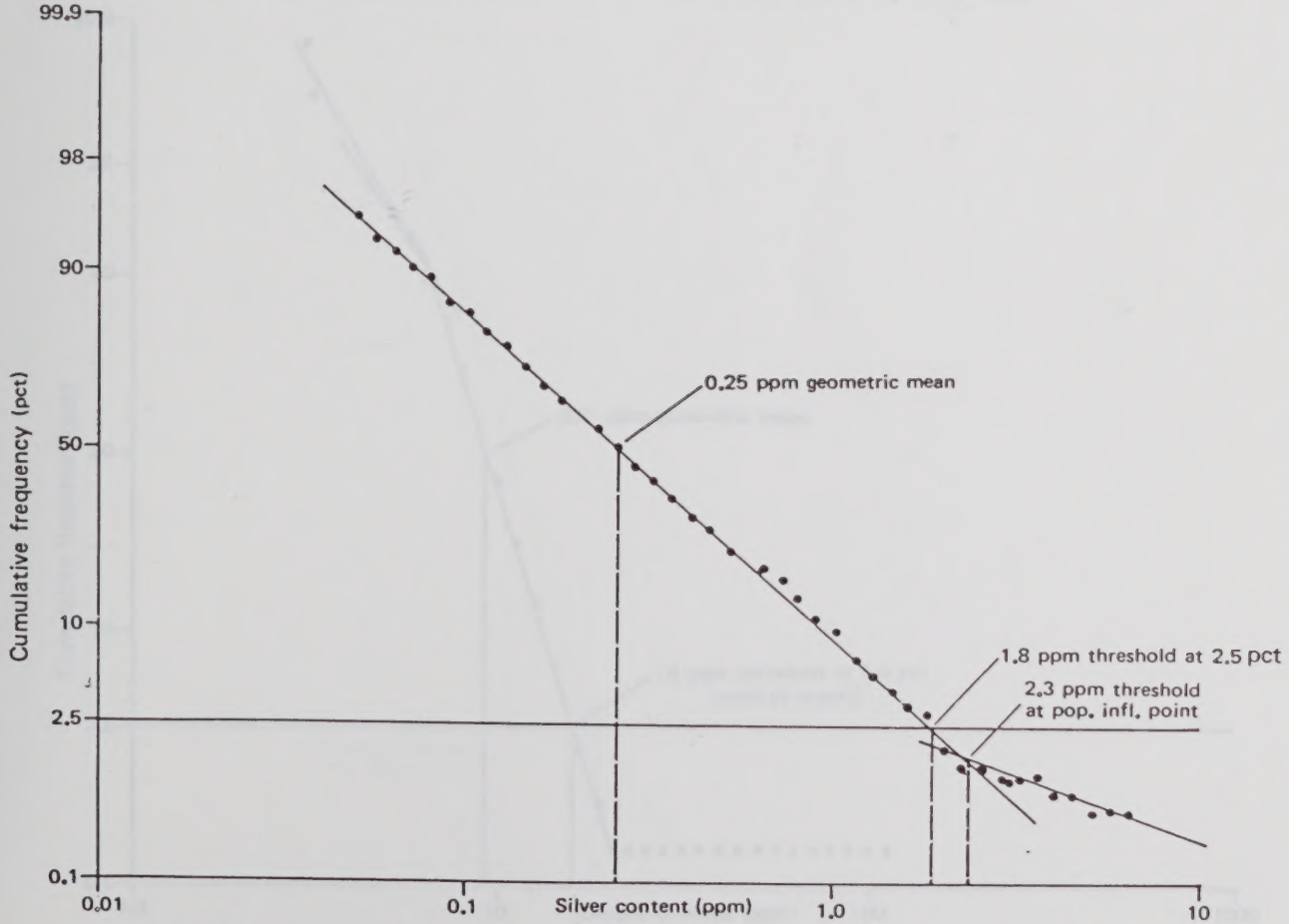
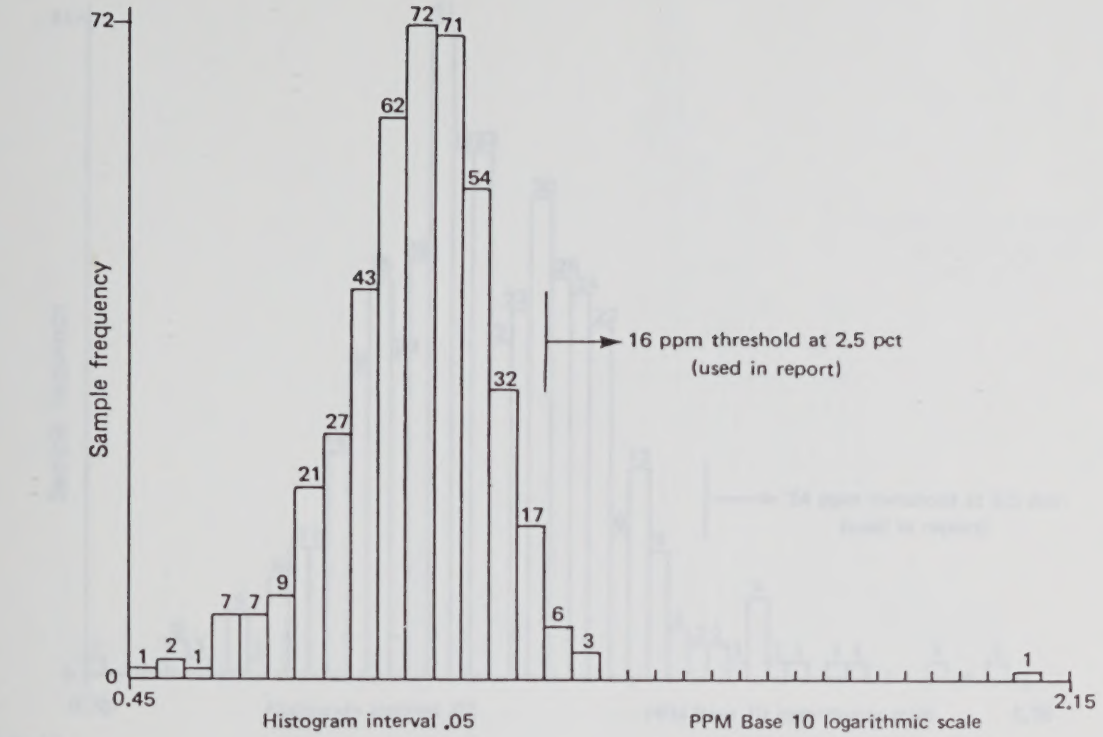


FIGURE B-2.– Histogram and cumulative frequency curve for silver values from the soil sample grid, Bold Ruler prospect



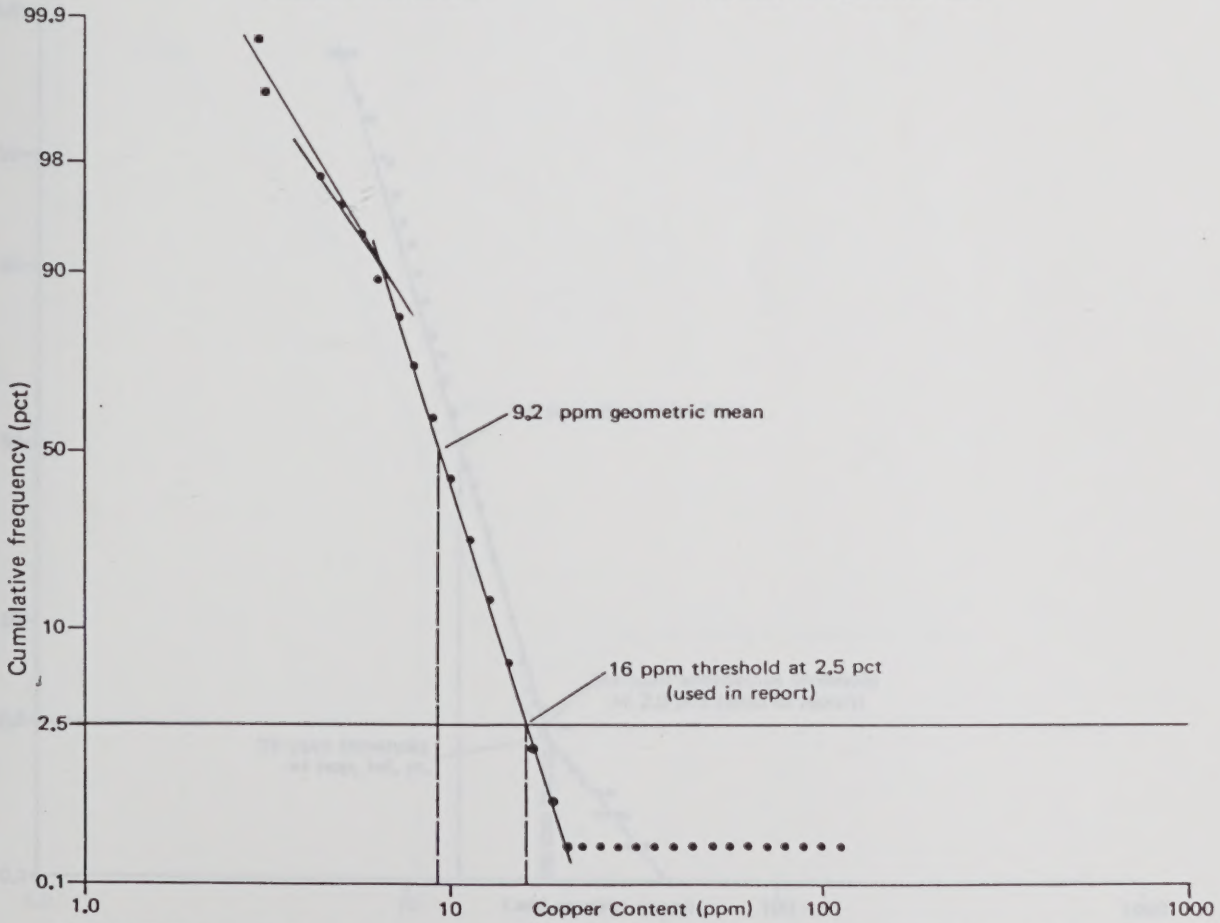


FIGURE B-3.– Histogram and cumulative frequency curve for copper values from the soil sample grid, Bold Ruler prospect

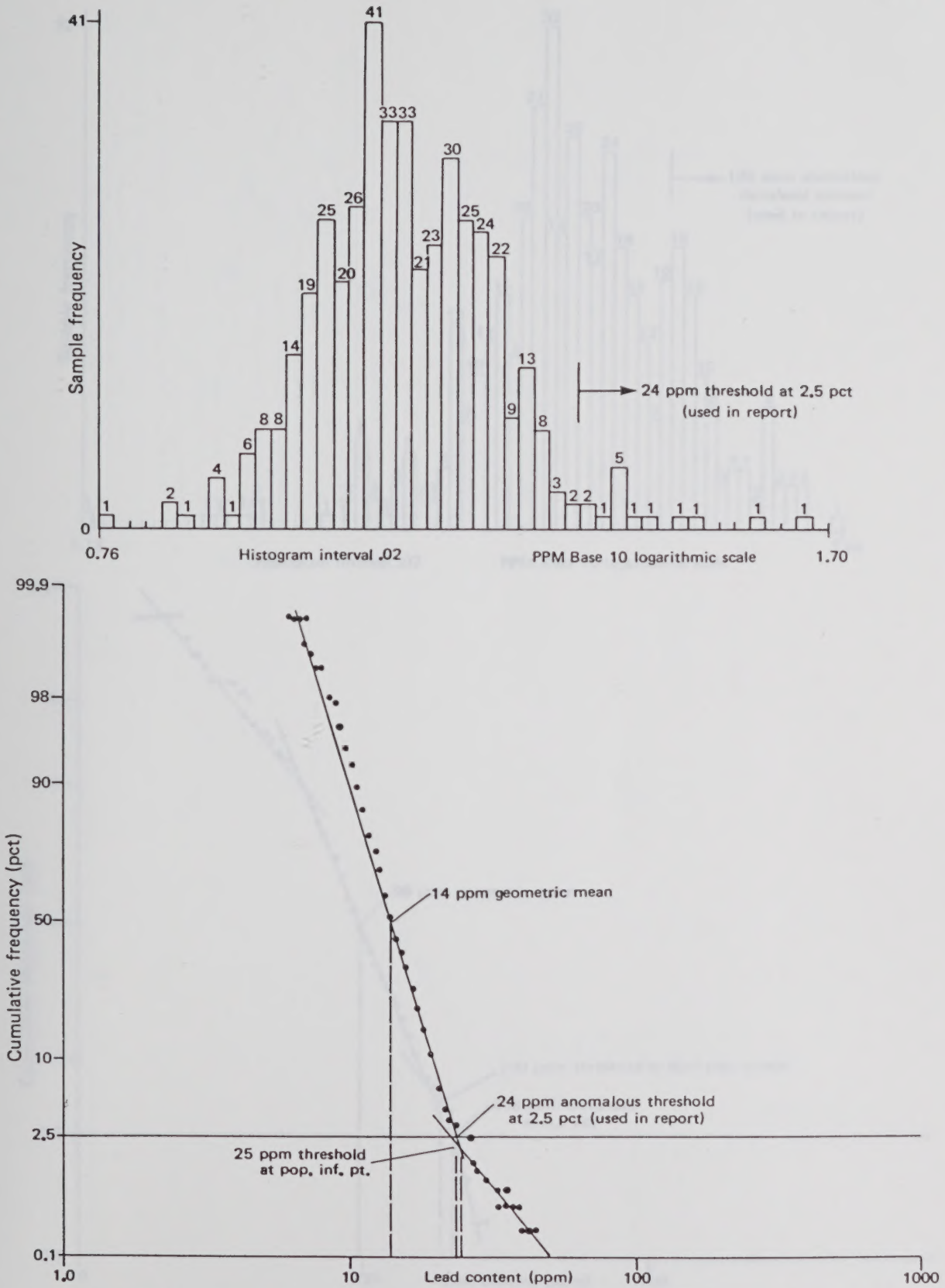
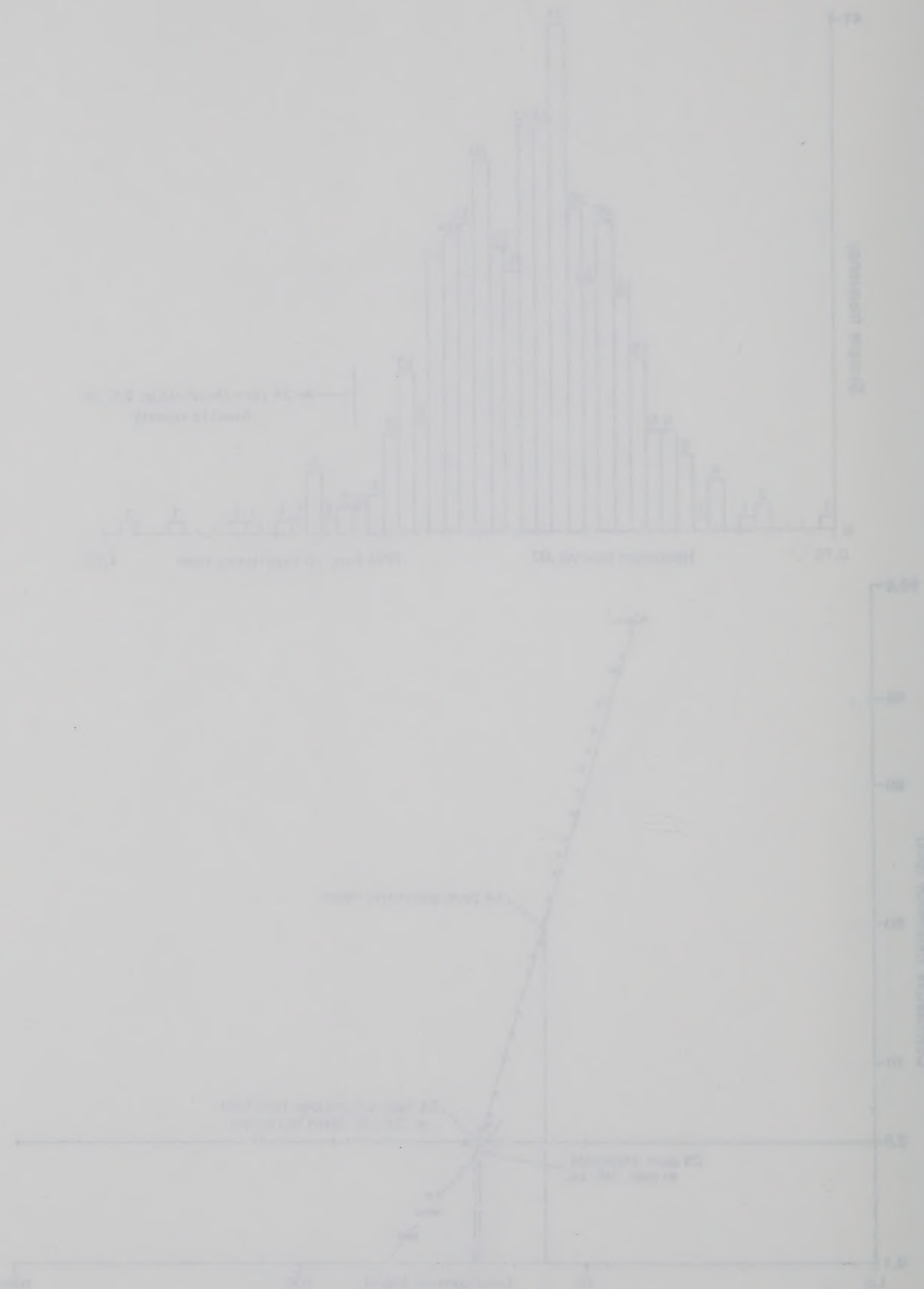
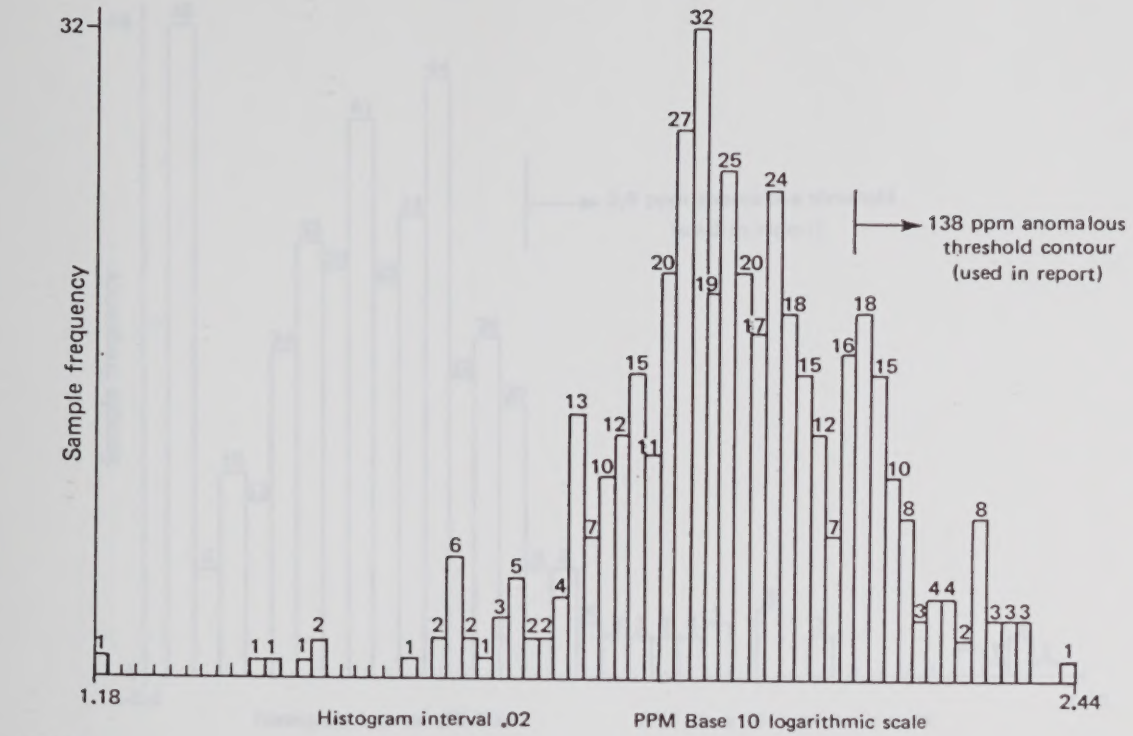


FIGURE B-4.– Histogram and cumulative frequency curve for lead values from the soil sample grid, Bold Ruler prospect




Sample frequency
32
1 1 1 2 1 2 2 1 3 5 2 2 4 6 7 10 12 13 15 11 20 27 19 32 25 17 20 24 18 15 12 7 16 18 15 10 8 3 4 4 2 8 3 3 3 1
138 ppm anomalous threshold contour (used in report)
1.18
2.44
Histogram interval .02
PPM Base 10 logarithmic scale

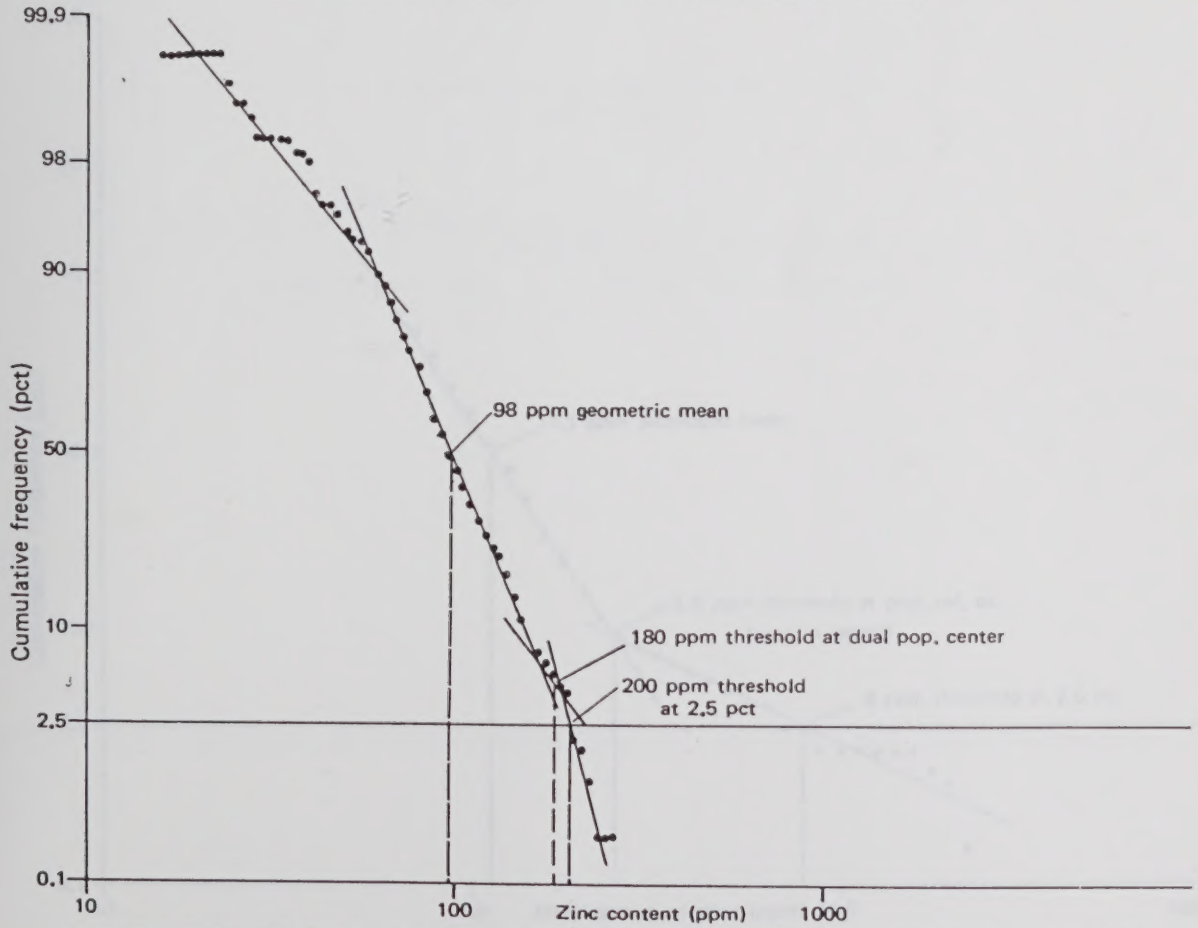
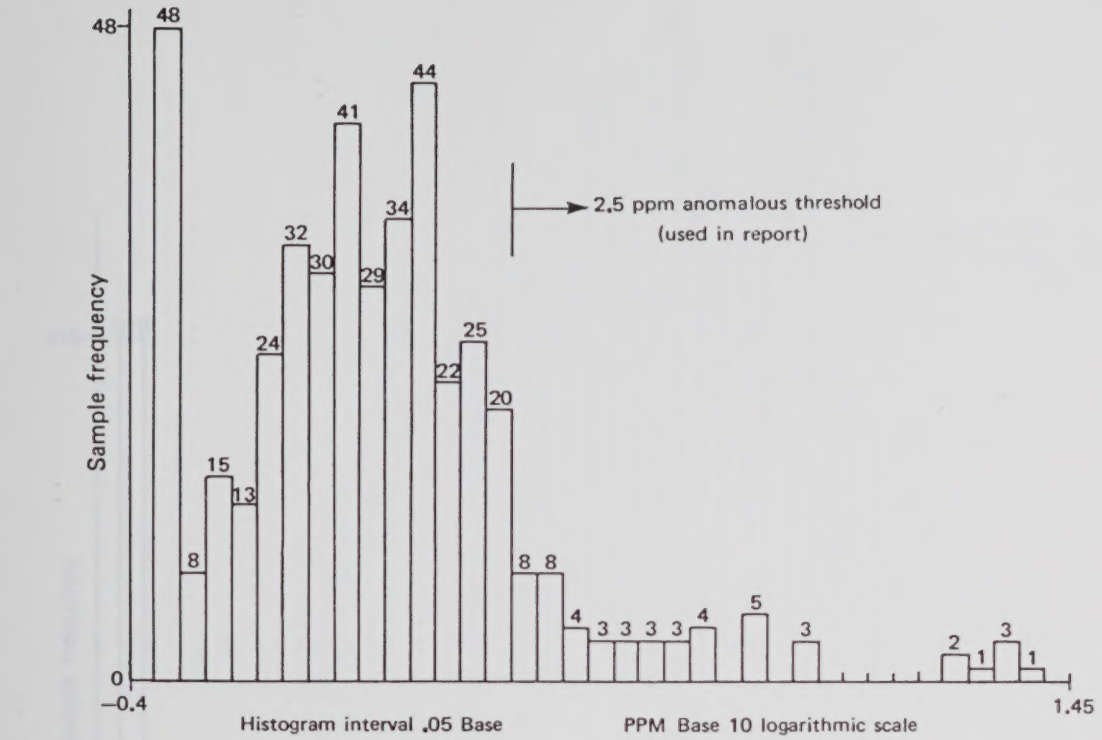


FIGURE B-5.– Histogram and cumulative frequency curve for zinc values from the soil sample grid, Bold Ruler prospect



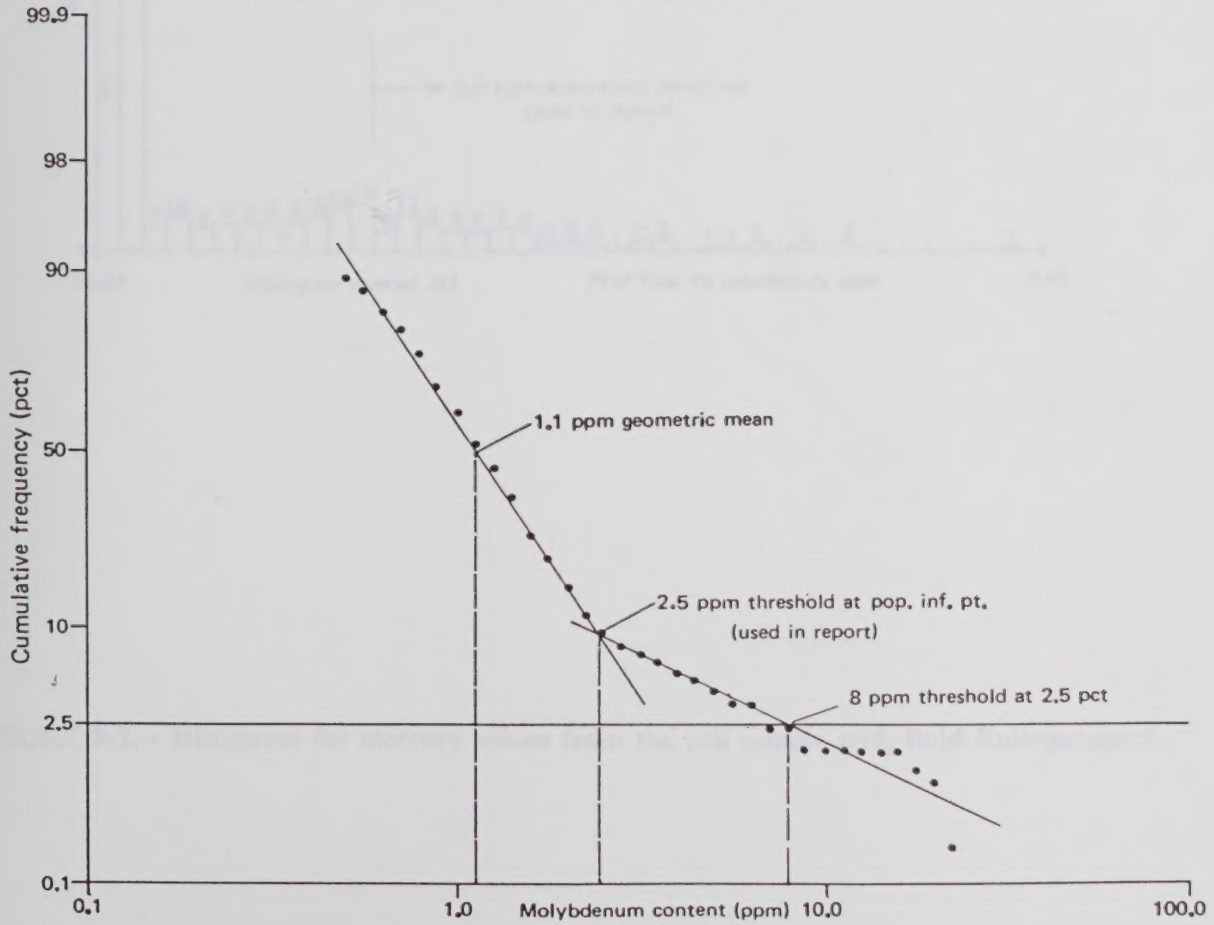


FIGURE B-6.– Histogram and cumulative frequency curve for molybdenum values from the soil sample grid, Bold Ruler prospect

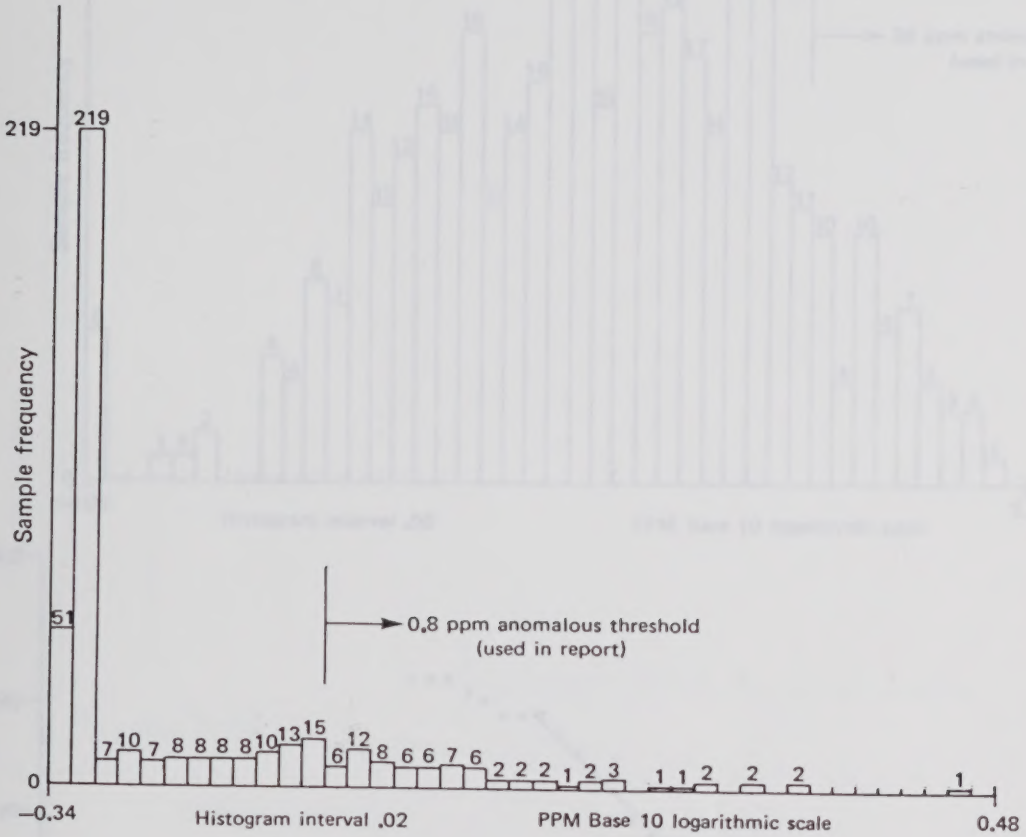

219
219
Sample frequency
51
0.8 ppm anomalous threshold
(used in report)
7 10 7 8 8 8 8 10 13 15 6 12 8 6 6 7 6 2 2 2 1 2 3 1 1 2 2 2 1
0
−0.34
Histogram interval .02
PPM Base 10 logarithmic scale
0.48

FIGURE B-7.– Histogram for mercury values from the soil sample grid, Bold Ruler prospect

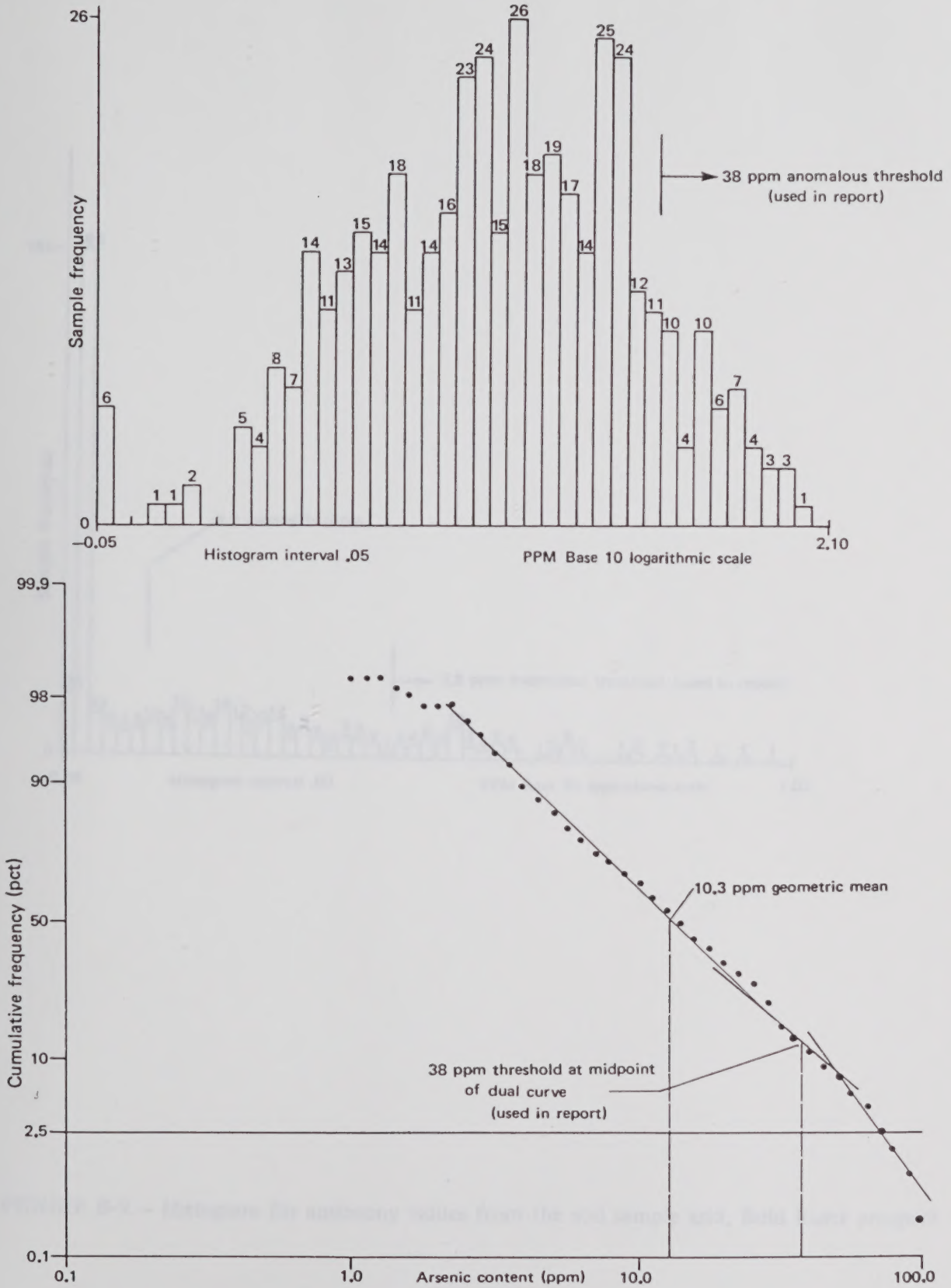
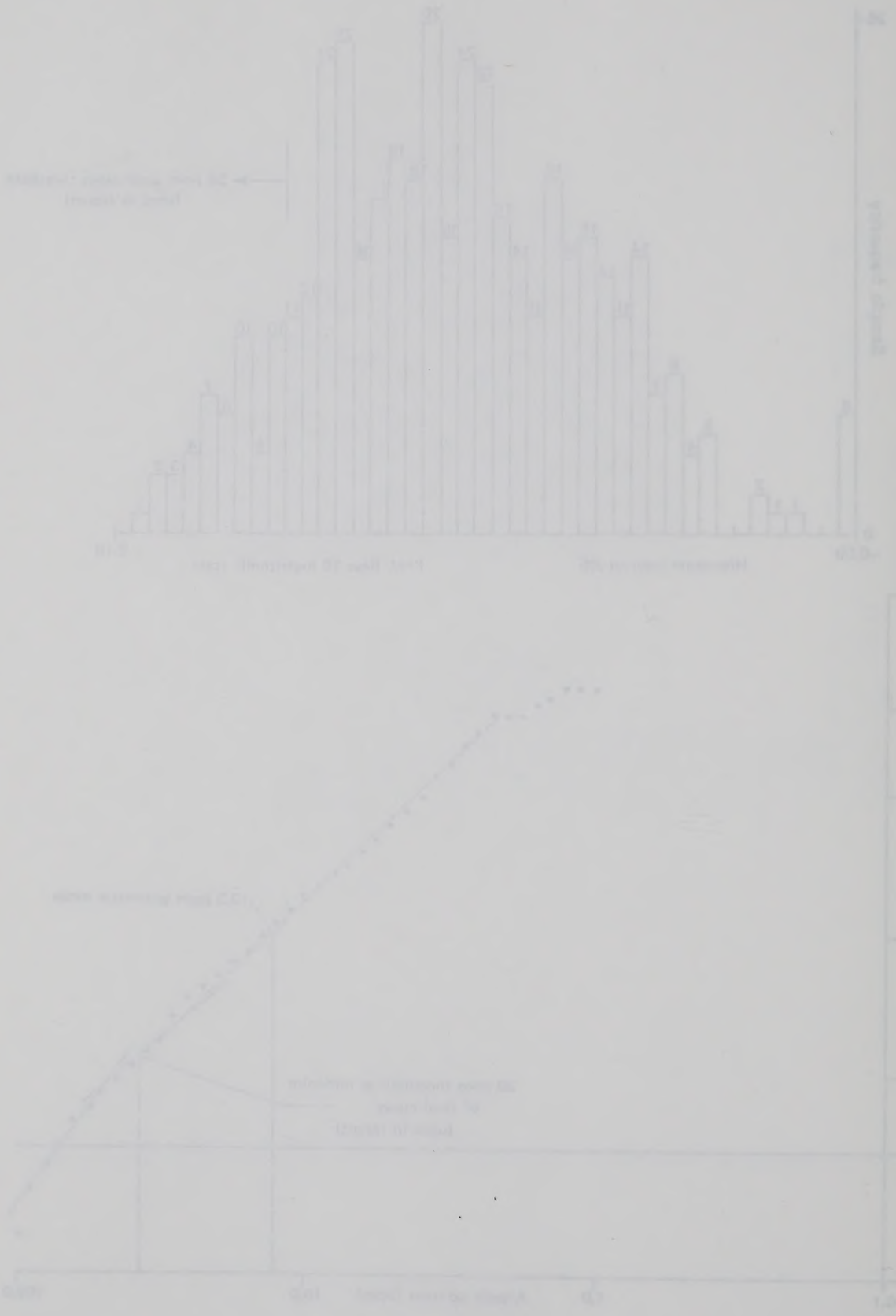


FIGURE B-8.– Histogram and cumulative frequency curve for arsenic values from the soil sample grid, Bold Ruler prospect



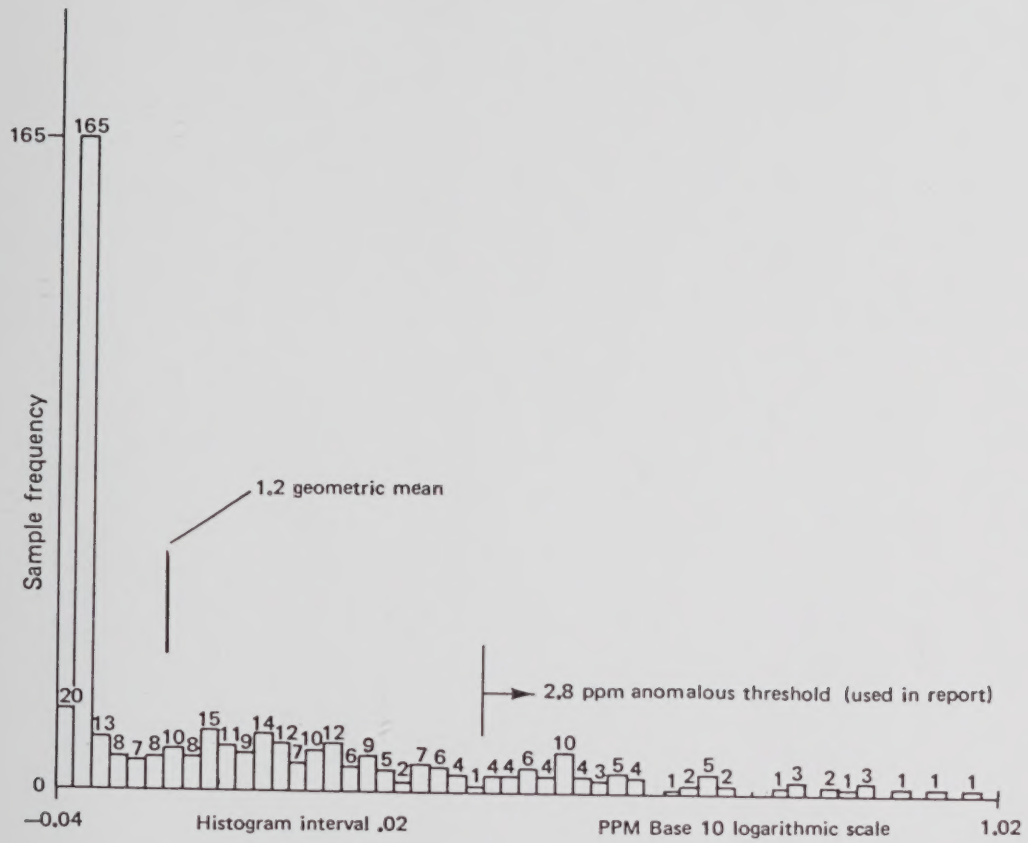

165
165
Sample frequency
1.2 geometric mean
2.8 ppm anomalous threshold (used in report)
20
13
8 7 8 10 8 15 11 9 14 12 10 12 7 6 9 5 2 7 6 4 1 4 4 6 4 10 4 3 5 4 1 2 5 2 1 3 2 1 3 1 1 1
0
−0.04
Histogram interval .02
PPM Base 10 logarithmic scale
1.02

FIGURE B-9.– Histogram for antimony values from the soil sample grid, Bold Ruler prospect

PLATE 2. – Threshold contour map of copper, lead, and zinc from the soil sample grid, Bold Ruler prospect

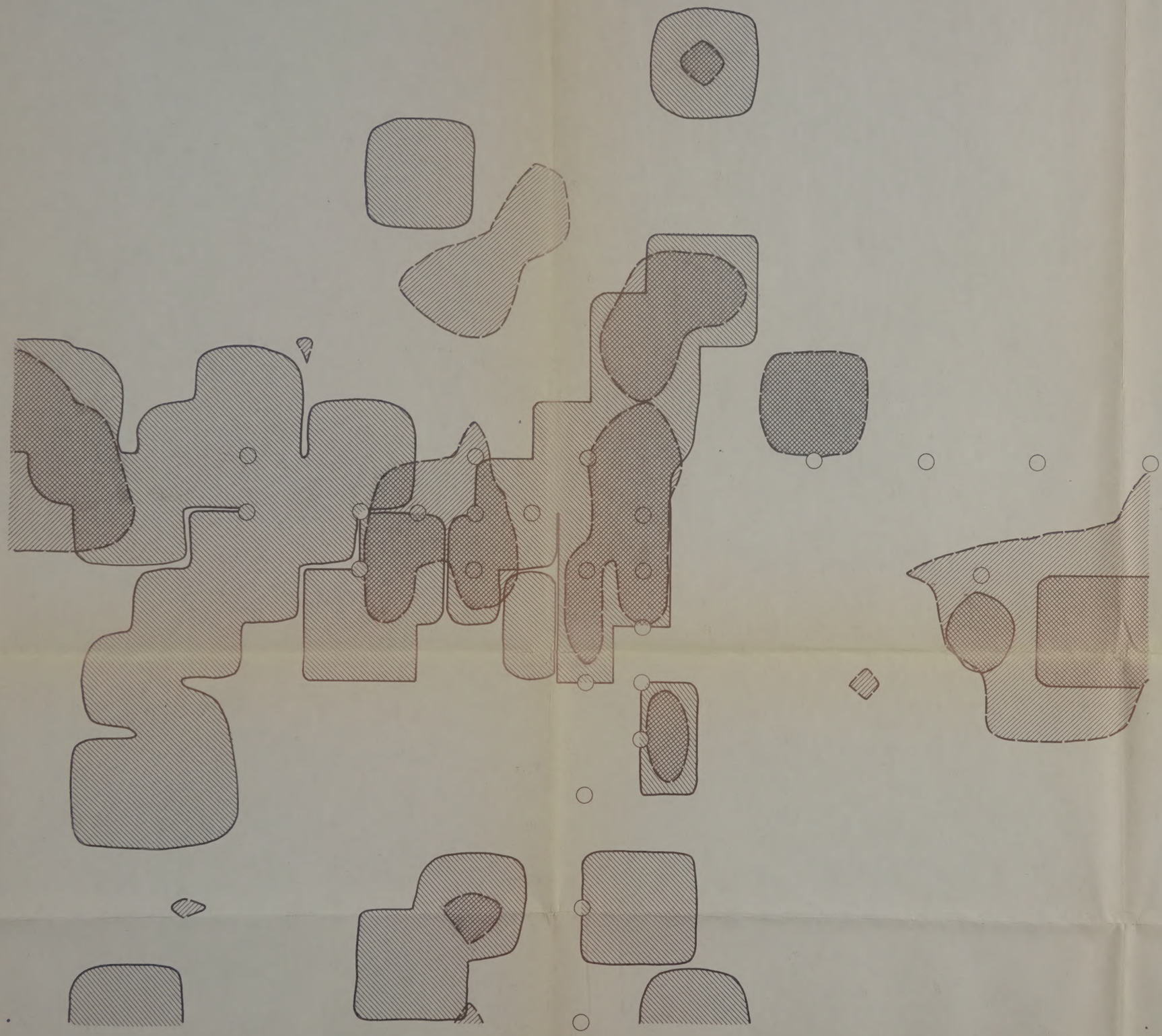
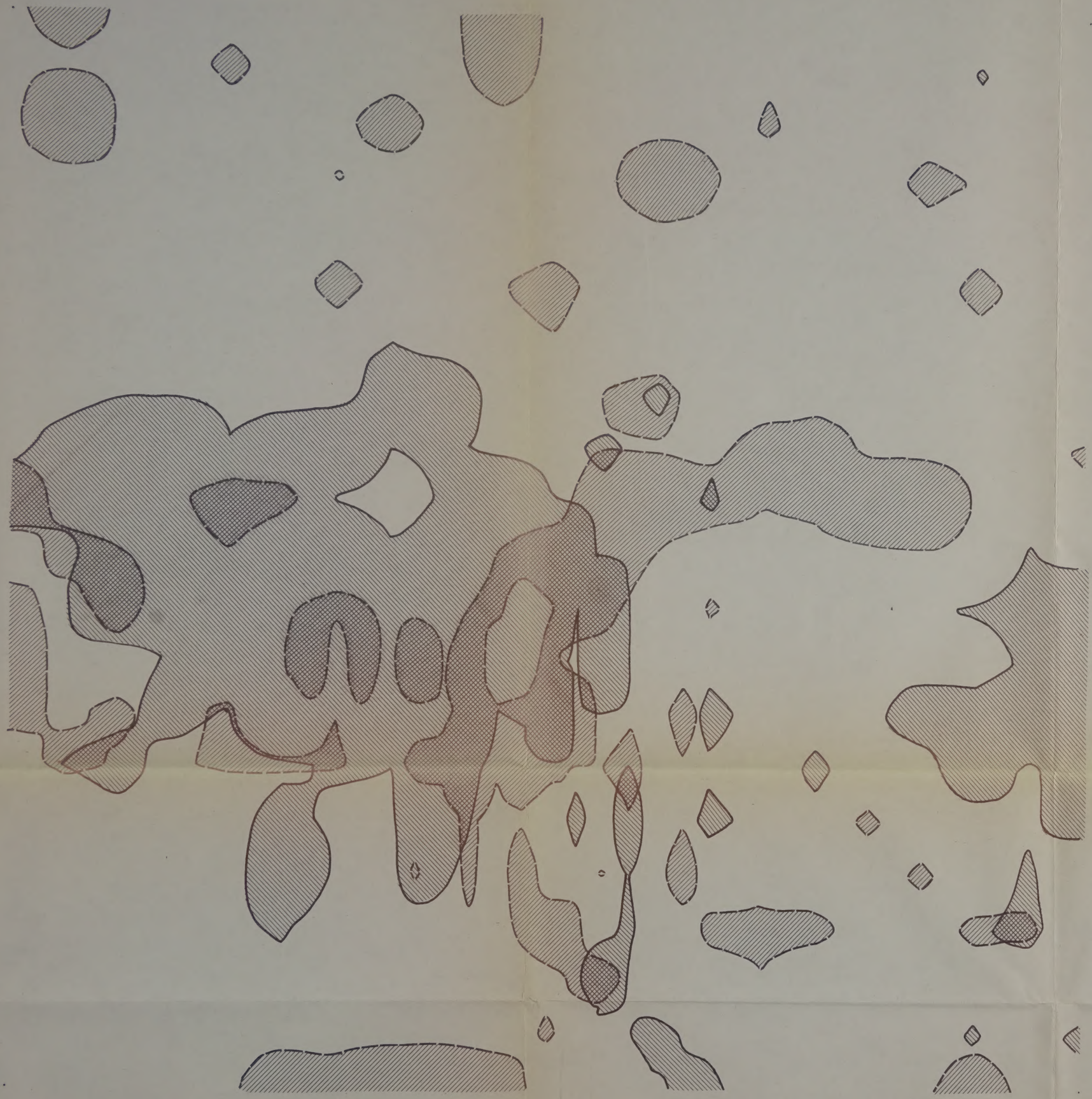


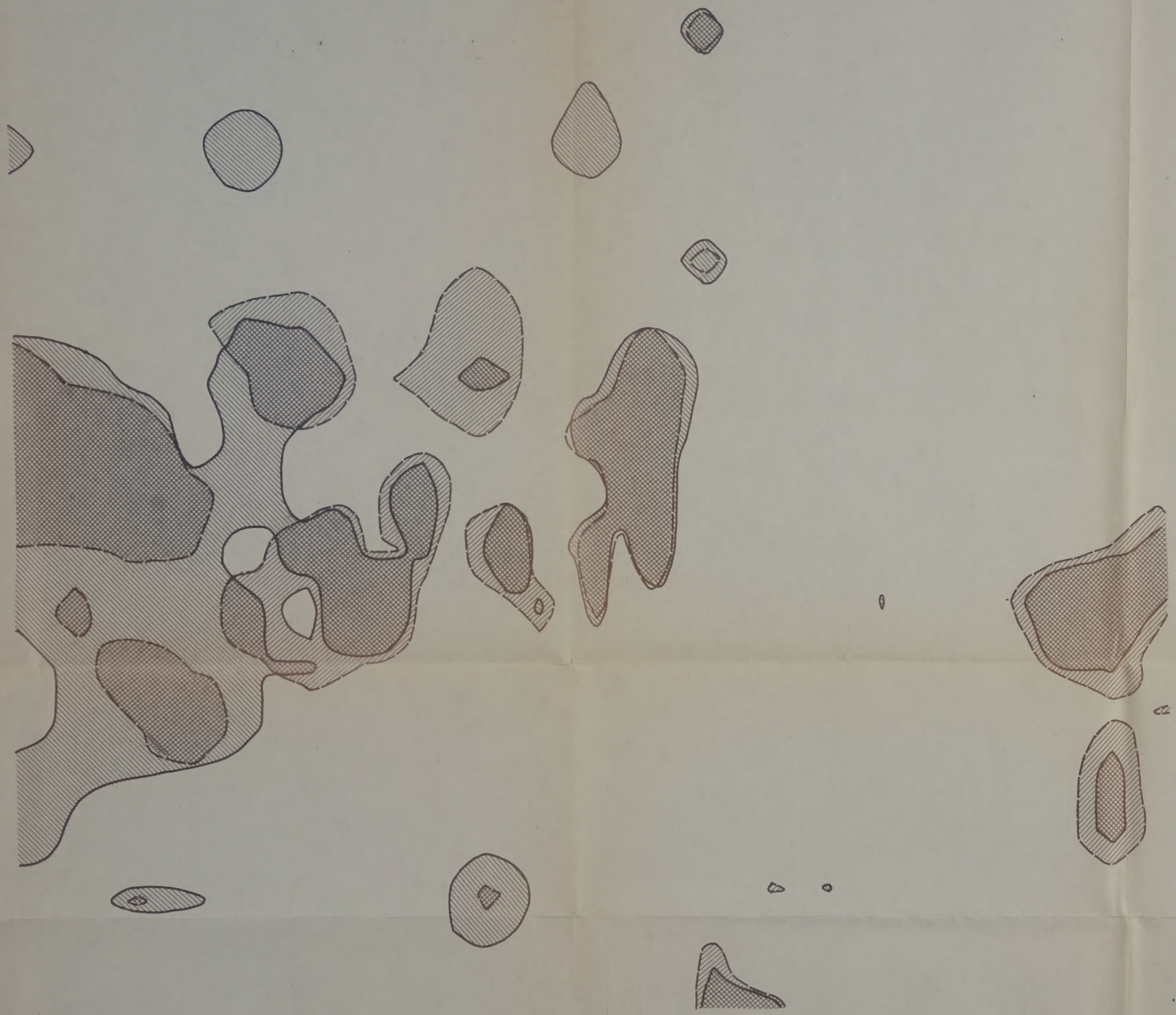
PLATE 3. – Threshold contour map of gold and molybdenum from the soil sample grid, Bold Ruler prospect (including soil pans with visible gold)



Mercury 0.8 ppm threshold contour

Silver 0.6 ppm threshold contour

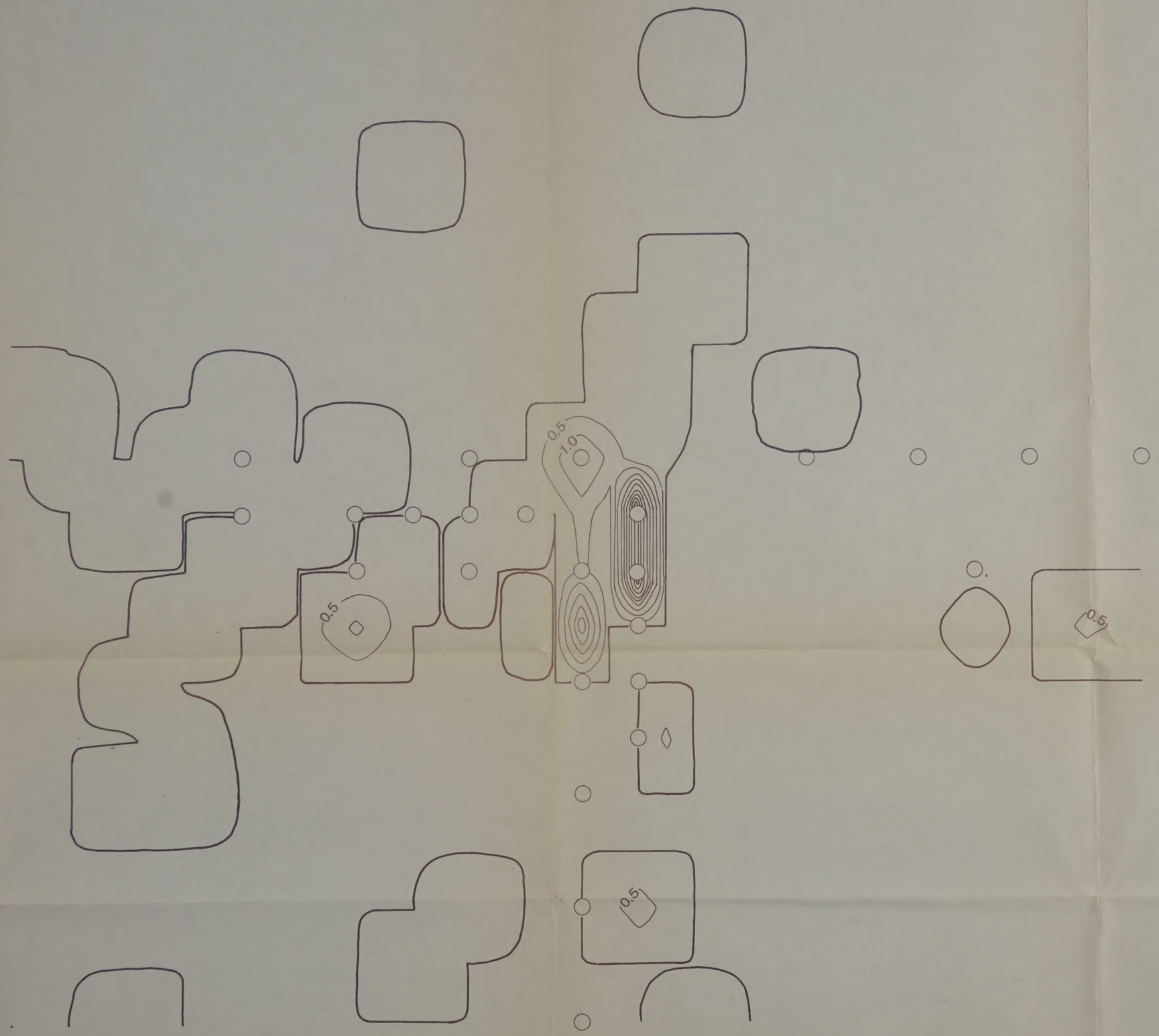
PLATE 4. – Threshold contour map of silver and mercury from the soil sample grid, Bold Ruler prospect



Arsenic 38 ppm threshold contour

Antimony 2.8 ppm threshold contour

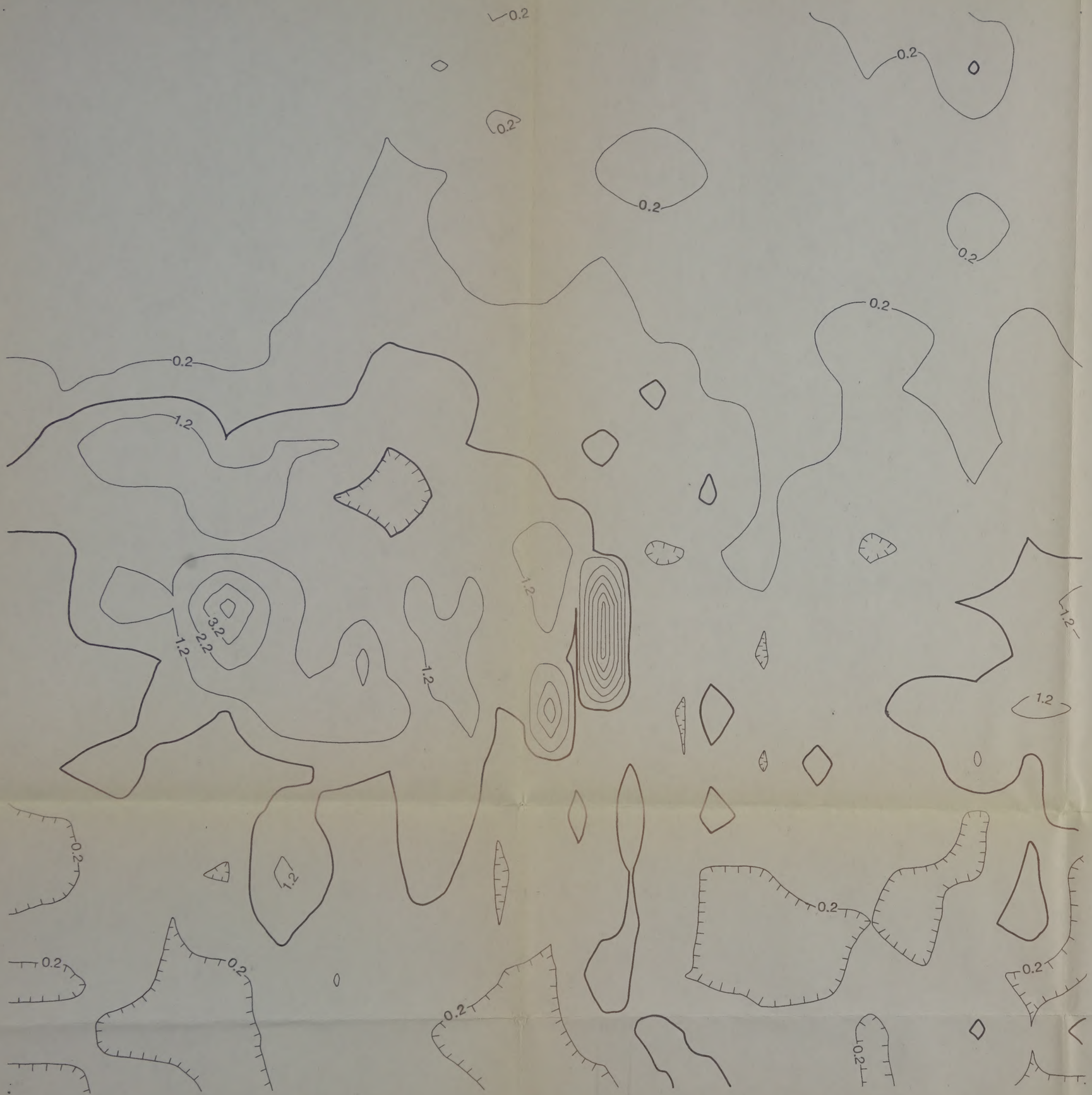
PLATE 5. – Threshold contour map of arsenic and antimony from the soil sample grid, Bold Ruler prospect



Gold 0.1 ppm threshold contour
Contour interval 0.5 ppm
Range 0.5-5.0 ppm

Soil pan samples with visible gold

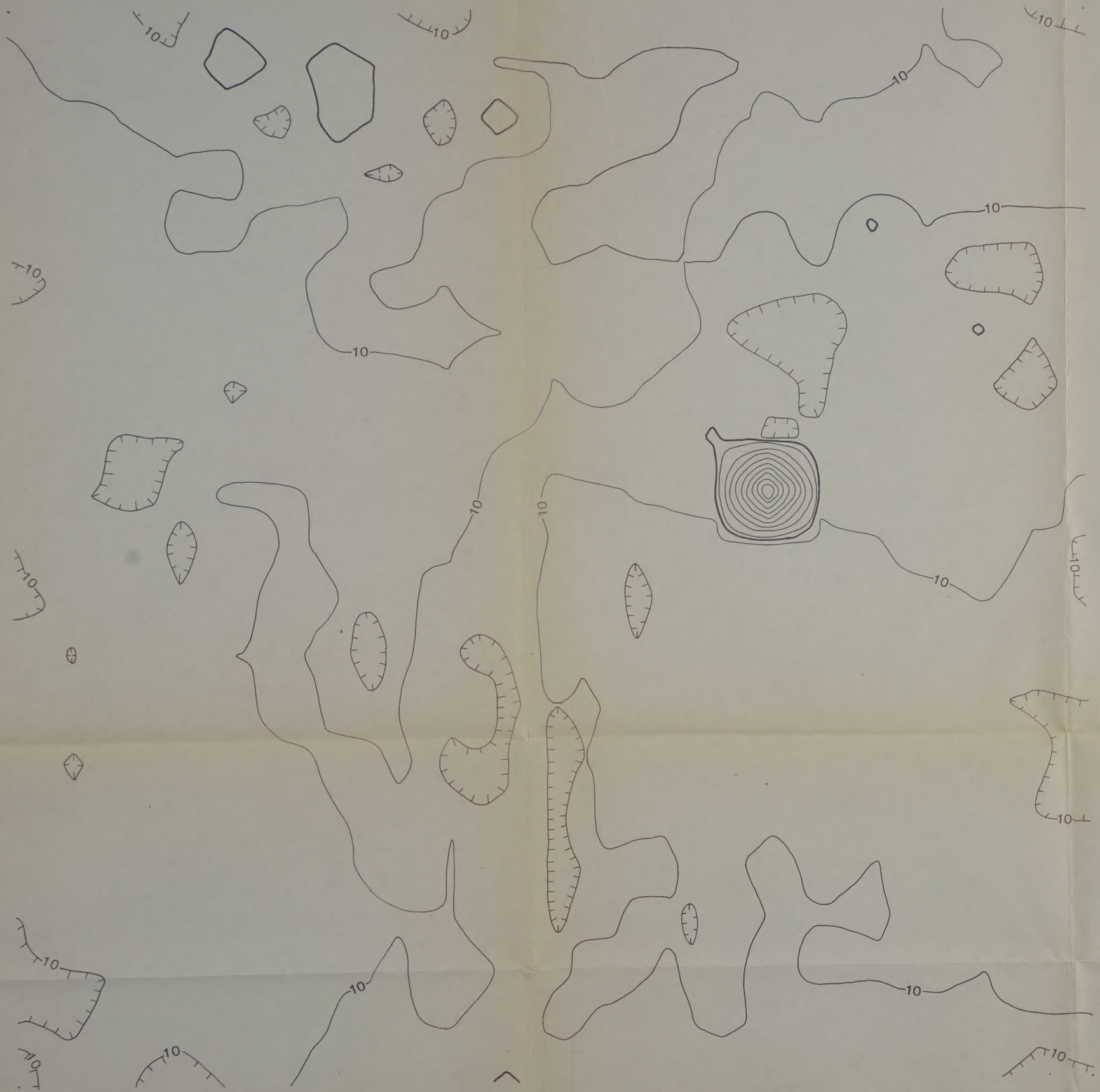
PLATE 6. – Geochemical contour map of gold values from the soil sample grid, Bold Ruler prospect



Geochemical depression

Silver 0.6 ppm threshold contour
Contour interval 1.0 ppm
Range 0.2-7.2 ppm

PLATE 7. – Geochemical contour map of silver values from the soil sample grid, Bold Ruler prospect


10
10
10

Geochemical depression

Lead 24 ppm threshold contour
Contour interval 5 ppm
Range 10-45 ppm

PLATE 9. – Geochemical contour map of lead values from the soil sample grid, Bold Ruler prospect

Geochemical depression

Zinc 138 ppm threshold contour
Contour interval 25 ppm
Range 25-250 ppm

PLATE 10. – Geochemical contour map of zinc values from the soil sample grid, Bold Ruler prospect

Geochemical depression

Molybdenum 2.5 ppm anomalous threshold contour
Contour interval 2 ppm
Range 1-23 ppm

PLATE 11. – Geochemical contour map of molybdenum values from the soil sample grid, Bold Ruler prospect

Geochemical depression

Mercury 0.8 ppm threshold contour
Contour interval 0.2 ppm
Range 0.6-2.6 ppm

PLATE 12. – Geochemical contour map of mercury values from the soil sample grid, Bold Ruler prospect

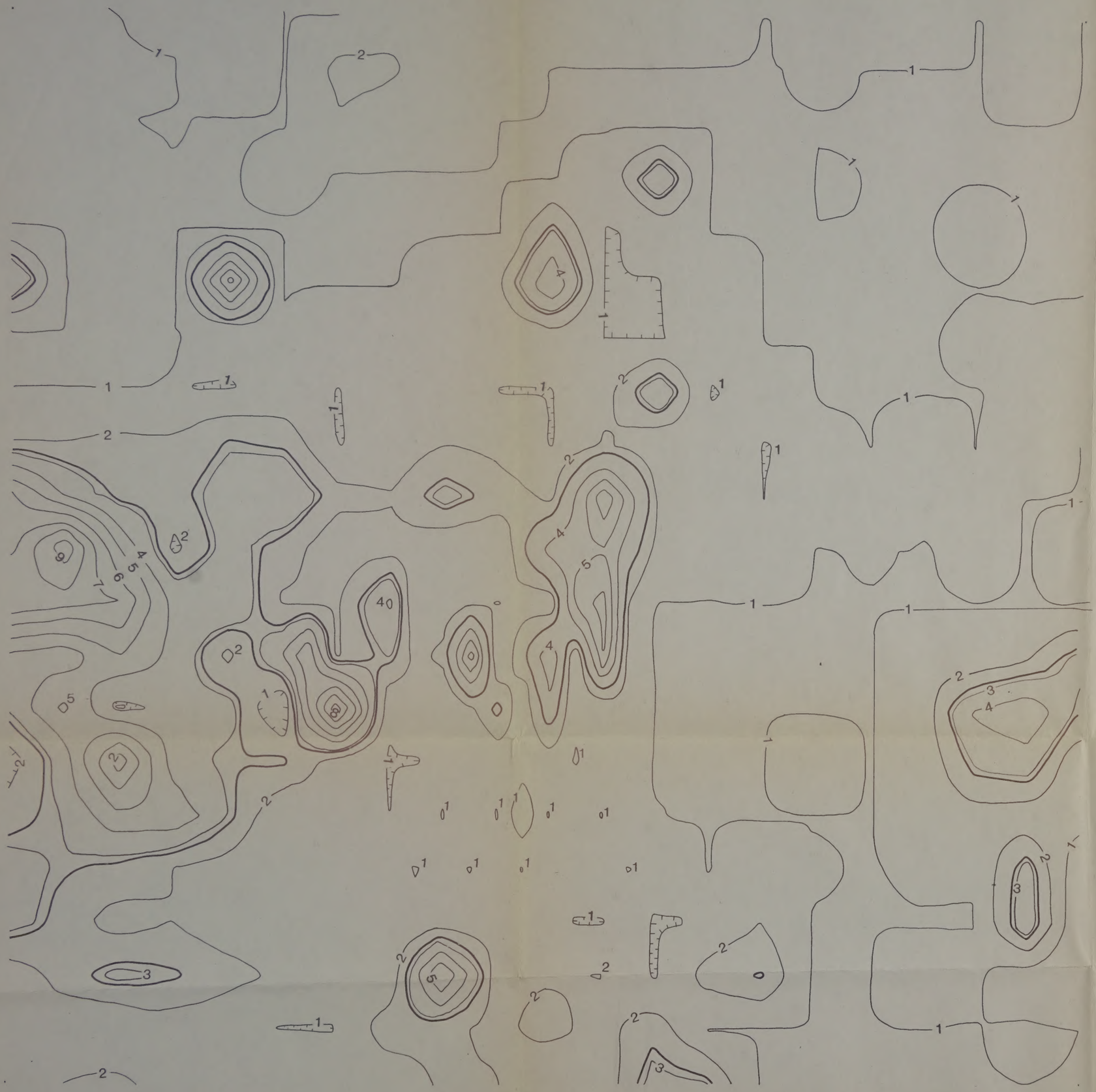
Geochemical depression

Arsenic 38 ppm threshold contour

Contour interval 10 ppm

Range 10-100ppm

PLATE 13. – Geochemical contour map of arsenic values from the soil sample grid, Bold Ruler prospect



Geochemical depression

Antimony 2.8 ppm threshold contour
Contour interval 1 ppm
Range 1-10 ppm

PLATE 14. – Geochemical contour map of antimony values from the soil sample grid, Bold Ruler prospect